MERCURY

Advanced Financial & Investment Risk Management: FRM-Level Master Program

5 – 9 September 2027
Muscat (Oman)



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Ref: 121336_1072644 **Date:** 5 – 9 September 2027 **Location:** Muscat (Oman) **Fees:** 5500 Euro

Introduction

This program delivers an advanced, practice-driven deep dive into financial and investment risk management, integrating global FRM methodologies, quantitative tools, and modern risk intelligence practices. It is for professionals who need real strategic capability, not shelf theory.

The course equips participants with the expertise to analyze, quantify, and manage financial and investment risks with FRM-grade precision. It builds advanced competence in modeling, mitigation frameworks, stress testing, market behavior, and enterprise-wide risk architecture.

Target Audience

- Senior analysts, risk officers, and investment professionals.
- Portfolio managers and treasury specialists.
- Banking and insurance risk teams.
- Professionals preparing for advanced FRM-level responsibilities.
- Consultants and strategic advisors working with financial institutions.

Training Objectives

By the end of this program, participants will be able to:

- Evaluate and quantify market, credit, operational, and liquidity risks using advanced quantitative tools.
- Design and implement risk mitigation strategies aligned with FRM global standards.
- Build and analyze investment risk models for portfolios, asset classes, and financial instruments.
- Conduct professional-level stress testing, back-testing, and risk scenario design.
- Assess systemic risk, tail risk, and emerging financial vulnerabilities.
- Apply risk intelligence frameworks to institutional decision-making.

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Targeted Competencies

- Advanced financial modeling.
- Quantitative risk analytics.
- Capital markets and portfolio risk management.
- Stress testing and scenario design.
- Regulatory and compliance risk frameworks.
- Enterprise risk governance.
- Strategic decision support.

Course Content

Unit 1: Advanced Foundations of Financial & Investment Risk Management:

- The architecture of financial risk: categories, interactions, systemic impact.
- FRM-level risk classification models market, credit, liquidity, operational, integrated risk.
- Risk-return dynamics: expected returns, volatility clusters, covariance, correlation structures.
- Foundations of quantitative risk measurement: distributions, stochastic processes, tail behavior.
- Risk governance: global frameworks Basel III, IV, risk appetite, risk culture anatomy.
- Enterprise Risk Management ERM: architecture, components, oversight mechanisms.
- Interaction of macroeconomics and risk: inflation, interest rates, monetary policy, cycles.
- Introduction to model risk: model assumptions, limitations, validation principles.

Unit 2: Market Risk Modeling and Quantitative Analysis:

- Market risk fundamentals: price risk, interest rate risk, FX risk, volatility risk.
- Advanced Value-at-Risk methodologies:
  - Parametric VAR.
  - Historical VAR.
  - Monte-Carlo VAR.
  - Fat tails, skewness, kurtosis adjustments.
- Expected Shortfall ES and coherent risk measures.
- Stress testing and scenario generation mechanisms.
- Interest rate risk analytics: duration, convexity, key rate duration, yield curve shifts.
- Equity and derivative risk: Greeks, sensitivities, delta-gamma-vega frameworks.
- Volatility modeling: GARCH, stochastic volatility, implied vs. realized volatility.
- Back-testing VAR and model performance diagnostics.

Unit 3: Credit Risk, Counterparty Exposure, and Portfolio-Level Credit Modeling:

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- Credit risk structure: PD, LGD, EAD, and credit exposures under stress.
- FRM-aligned credit measurement models:
  - Structural models Merton, KMV.
  - Reduced-form models.
- Credit ratings: transition matrices, credit scoring, internal rating systems.
- Counterparty credit risk CCR: CVA, DVA, wrong-way risk dynamics.
- Credit derivatives: CDS mechanics, basis trades, credit indices.
- Portfolio credit modeling: factor models, copulas, default correlations.
- Securitization risk: tranching, credit enhancement structures.
- Credit portfolio optimization and concentration risk management.

Unit 4: Liquidity, Operational, and Enterprise-wide Risk Integration:

- Liquidity risk measurement: funding liquidity vs. market liquidity.
- Liquidity ratios and early-warning indicators.
- Behavioral liquidity modeling and crisis-driven liquidity spirals.
- Operational risk deep dive: cyber risk, third-party exposure, process failure, model misuse.
- Scenario analysis for operational shocks.
- Risk aggregation: integrating market, credit, liquidity, and operational exposures.
- Capital adequacy and allocation: economic vs. regulatory capital.
- Risk dashboards, KRIs, and enterprise-level reporting systems.
- Governance, compliance, and conduct risk across institutions.

Unit 5: Investment Risk Intelligence, Portfolio Engineering, and Stress-Based Allocation:

- Portfolio construction under uncertainty: mean-variance limits, robust optimization.
- Asset allocation models: strategic, tactical, dynamic, risk-parity frameworks.
- Risk budgeting and risk-contribution analysis.
- Tail-risk management: extreme value theory, black-swan profiling, fragility indicators.
- Stress-based portfolio allocation and scenario-driven adjustments.
- Factor-based investing and systematic risk decomposition.
- Hedge strategies: derivatives, structured products, overlays, hedging ratios.
- Performance measurement vs. risk-adjusted returns: Sharpe, Sortino, Treynor, information ratio.
- Integration of risk intelligence into investment committees and decision-making processes.