ZISHI™

AI, DATA SCIENCE & TECHNOLOGY

LEARN WITH THE LEADING FINANCIAL SERVICES TRAINING & EDUCATION PROVIDER

Contents

Welcome to ZISHI

Committed to unlocking success for your business, we have been empowering our clients to build **resilience through knowledge** for over 25 years.

A recognised global leader, we stand as the preferred and trusted training and education partner for a number of the world's most prestigious financial institutions.

Our cutting-edge, immersive learning experiences support the breadth of the financial industry, from some of the largest asset management firms and global trading exchanges to world-leading universities, sovereign wealth funds, energy companies, refiners, and investment, commercial and central banks.

Spanning all levels of trading qualifications, the maze of regulatory and compliance training and financial services professional development, ZISHI's expertise is unrivalled.

Our internal faculty of leading trainer-practitioners sets us apart. Delivering solutions uniquely crafted to bridge your business's knowledge gap, our wealth of educator experience and hands-on industry insight ensures your teams receive practical, up-to-date, and contextually relevant training.

Whether one-to-one or multi-faceted group deliveries, entry level or boardroom executives, and from design through to delivery, ZISHI is uniquely placed to become your trusted training partner, developing programmes and learning pathways to meet your specific operational needs.

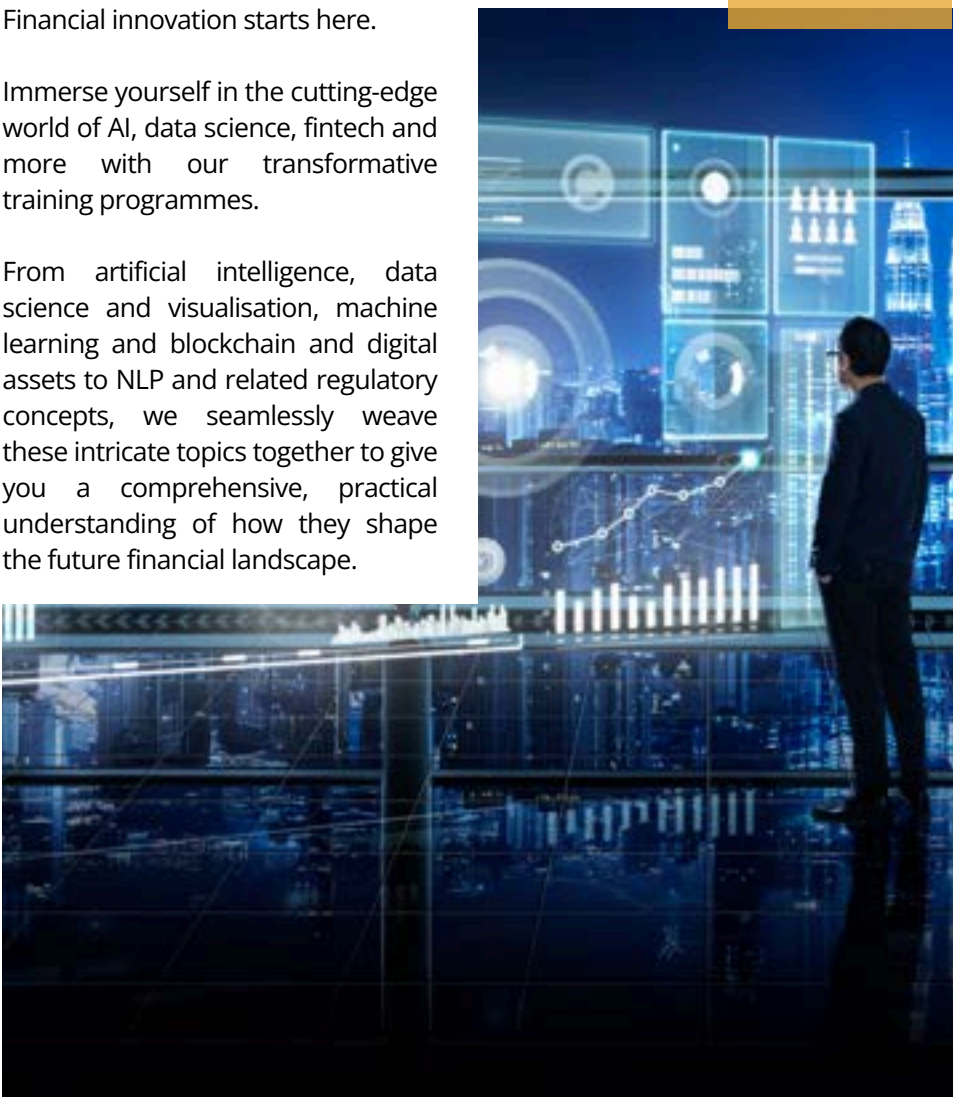
Enabling informed decision-making and contributing to financial stability and wealth creation, we build **resilience through knowledge** across your business.

AI, Data Science & Technology

Financial innovation starts here.

Immerse yourself in the cutting-edge world of AI, data science, fintech and more with our transformative training programmes.

From artificial intelligence, data science and visualisation, machine learning and blockchain and digital assets to NLP and related regulatory concepts, we seamlessly weave these intricate topics together to give you a comprehensive, practical understanding of how they shape the future financial landscape.



Powerful Learning Solutions

Blended learning for better results.

We believe in a whole-of-organisation approach to professional development training, and our blended learning approach utilises all the right tools in all the right ways.

Bespoke Content Creation

Looking for tailor-made learning solutions? We specialise in crafting personalised content that aligns seamlessly with your organisation's objectives.

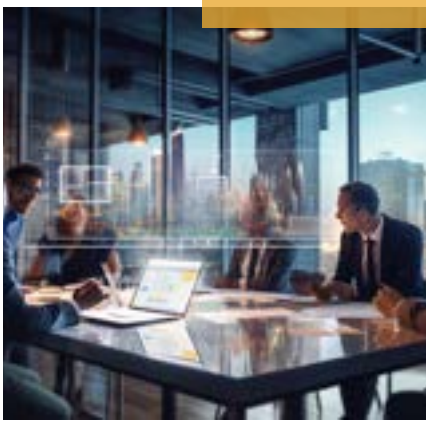
Real-World Simulator-Based Learning

Take the learning experience to the next level with immersive, hands-on experiences that bridge the gap between theory and practice.

Curated Learning Journeys

For clients seeking comprehensive ongoing learning pathways, our digital learning team possesses the expertise and knowledge to support your long-term ambitions.

Our multi-channel delivery options can be mixed and matched and guarantee a seamless experience through whichever methods you prefer.



Rapid Deployment

Need to quickly roll out bite-sized, focused learning modules? We've got you covered with swift and effective solutions.

Digitising Existing Content

We excel at transforming your traditional learning materials into dynamic, interactive digital formats, breathing new life into your educational resources.

Course Outlines

Courses listed within this brochure are a representation of those we offer and can curate for your needs. Visit www.thezishi.com or speak to your sales representative for further information.

Page 29 gives further information about our tailor-made training solutions.

ZISHI™

Course outline

Data Visualisation

Available as
In-house
In-person
Digital
Blended

DATA VISUALISATION

The Data Visualisation course offers an immersive introduction to the leading tools and methodologies in the field, designed to equip participants with the skills needed to effectively visualize and communicate data insights.

Starting with an introduction to Tableau, the course covers basic visualisation techniques, data hosting, and import/export functions.

It progresses to Alteryx, teaching basic visualisation and how to integrate Alteryx data with Tableau and PowerBI, followed by an introduction to PowerBI for data visualisation and management.

Beyond tools, the course emphasizes the art of storytelling with data, teaching participants how to plan presentations, ask the right questions, and keep visualisations simple yet impactful.

Modules on colour palette and visual design, along with data presentation techniques, further refine the participants' ability to craft compelling data stories.

Through practical exercises, case studies, and a focus on simplicity and clarity, this course is perfect for anyone looking to enhance their data visualisation skills and make data-driven decisions more accessible and actionable.

DATA VISUALISATION

LEARNING OBJECTIVES

- Master the basics of data visualisation using Tableau, including how to host, import, and export data, setting a foundation for creating insightful visual analytics.
- Gain proficiency in Alteryx for data manipulation and visualisation, learning to seamlessly send data to Tableau and PowerBI for further analysis and visual representation.
- Develop skills in using PowerBI for basic data visualisation tasks, including data hosting, importing, exporting, and crafting visual reports and dashboards.
- Understand and apply the principles of storytelling with data, focusing on planning presentations, identifying key questions, and simplifying complex information for clarity.
- Learn the art of asking the right questions to clarify data analysis objectives, along with techniques for preparing and cleaning data to avoid misinterpretation.
- Enhance visual design and presentation skills, including the selection of appropriate color palettes, chart types, and dashboarding tools to effectively communicate data insights and manage viewer expectations.

COURSE AGENDA

Introduction to Tableau

- Basic data visualisation in Tableau
- Hosting data
- Importing/exporting

Introduction to Alteryx

- Basic data visualisation in Alteryx
- Sending Alteryx data to Tableau/PowerBI
- Manipulating incoming data

Introduction to PowerBI

- Basic data visualisation in PowerBI
- Hosting data
- Importing/exporting

Storytelling with Data

- Planning for the presentation
- Understanding the key questions
- Keep it simple

Asking the Right Questions

- Clarifying data questions
- Preparing/cleaning data
- Data torturing

Colour Palette/Visual Design

- Basics of colour design
- Simplicity
- Chart types to use vs. avoid

COURSE AGENDA

Data Presentation

- Talking through data visualisation
- Tooltip/dashboarding
- Managing expectations

Deep Dive and case study

ZISHI™

Course outline

Machine Learning

Available as
In-house
In-person
Digital
Blended

MACHINE LEARNING

This course is expertly crafted to guide participants through the foundational concepts and advanced techniques in the field.

Starting with an introduction to what machine learning is and its differentiation from data science and AI, the course moves into practical aspects such as project identification, formulating machine learning questions, and defining success metrics. It covers essential project management strategies specific to machine learning, including DevOps integration, lifecycle examples, and team structuring.

Participants will delve into basic algorithms like linear regression and cluster analysis, understand the pivotal role of statistics and probability, and engage in exploratory data analysis using visualisation techniques.

The course also addresses technical skills in linear algebra for large data manipulation, strategies for managing training vs. testing data, combating overfitting, and the intricacies of recommendation engines including hyper-parameter tuning.

Culminating in a full project example, this course is designed for those looking to deepen their understanding of machine learning applications and methodologies, enhancing their ability to develop and implement machine learning models effectively.

MACHINE LEARNING

LEARNING OBJECTIVES

- Understand the fundamental concepts of machine learning, distinguishing it from data science and artificial intelligence, and recognize its basic applications in the real world.
- Develop the ability to formulate a machine learning question, identify relevant metrics for project success, and understand the steps involved in project identification.
- Acquire project management skills tailored to machine learning projects, including knowledge of DevOps integration, understanding the project lifecycle, and structuring a machine learning team.
- Gain proficiency in basic machine learning algorithms, including linear regression and cluster analysis, and understand the differences between supervised and unsupervised learning.
- Master the essentials of statistics and probability in the context of machine learning, including calculating probabilities, understanding chained probabilities, and recognizing sampling biases.
- Learn exploratory data analysis techniques for extracting insights from datasets, comprehend the importance of training vs. testing data to avoid overfitting, and explore the development and tuning of recommendation engines.

COURSE AGENDA

Basic Machine Learning

- What is machine learning?
- Difference between ML, Data Science, and AI
- Basic applications in the real world

Project Identification

- Formulating a machine learning question
- Understanding and identifying metrics
- Defining success

Machine Learning Project Management

- DevOps for machine learning projects
- Project lifecycle examples
- Machine learning team structure

Basic Algorithms

- Linear regression
- Cluster analysis
- Supervised vs. unsupervised learning

Statistics and Probability

- Calculating probability
- Chained probability and statistics
- Sampling and bias

Exploratory Data Analysis (EDA)

- Quick view of datasets
- Pulling basic insights from data
- Visualisation techniques

COURSE AGENDA

Training vs. Testing Data

- Splitting data
- Avoid 'small positive' errors
- Pseudo-random division

Overfitting / Common Issues

- What is overfitting?
- How can you test a model's accuracy?
- Testing a data model?

Recommendation Engines

- Elements of recommendation
- Hyper-parameter tuning
- Trivial vs. non-trivial parameters

Full Project Example

- Walkthrough a full machine learning project

ZISHI™

Course outline

Disruptive Technology & AI Masterclass

Available as
In-house
In-person
Digital
Blended

DISRUPTIVE TECHNOLOGY & AI MASTERCLASS

This is a comprehensive course designed to explore the radical disruption across various sectors driven by key technological advancements, with a special focus on Artificial Intelligence (AI), the forefront of these changes.

This masterclass will introduce participants to disruptive technologies through simple definitions, strategic frameworks, and memorable case studies, providing insights into their potential impacts.

A deep dive into AI and Machine Learning will demystify the concepts, highlight recent developments like ChatGPT, and address regulatory considerations.

Participants will engage in sector-specific brainstorming sessions to identify the impact of disruptive technologies in their fields, fostering a robust understanding and discussion. Additionally, the course offers unique insights into the application of leading technologies in Formula 1 (F1) racing, demonstrating how F1 innovations disrupt the sector and influence other industries, including aerospace, manufacturing, and agriculture.

Attendees will learn from F1's approach to adopting disruptive technologies and processes swiftly to maintain a competitive edge, applying these lessons to drive innovation and strategic thinking in their own sectors.

DISRUPTIVE TECHNOLOGY & AI MASTERCLASS

LEARNING OBJECTIVES

- Identify and understand key disruptive technologies shaping various sectors, including their definitions, strategic implications, and examples of how they have enabled radical business transformation.
- Gain a deeper understanding of Artificial Intelligence (AI) and Machine Learning, differentiating between the two, exploring their potential, and discussing regulatory challenges and memorable case studies.
- Apply strategic thinking to assess the impact of disruptive technologies within specific sectors, enhancing the ability to foresee industry trends and their implications for business strategy and innovation.
- Learn from the application of disruptive technologies in Formula 1 (F1), including innovations like wings, carbon fibre, and hybrid powertrains, and understand how these technologies drive competition and adaptation.
- Explore the translation of F1's disruptive technologies and world-class processes, such as pit stop methodologies and design cycles, into other industries to improve efficiency, innovation, and competitive advantage.
- Discuss the future potential of AI and Machine Learning within the context of F1 and their applicability to broader industry challenges, fostering insights into the art of quick implementation and adaptation to maintain market leadership.

COURSE AGENDA

Disruptive Technologies

What are the key Disruptive Technologies?

- Provide simple definition and introduce the key technologies with examples of how they have enabled radical business disruption in different sectors
- Introduce strategic frameworks

AI & Machine Learning

Double-Click on AI

- Recent ChatGPT hype shows the need for senior leaders to understand the fundamentals of AI & Machine Learning to guide their thinking
- Understand Machine Learning, distinguish it from Artificial Intelligence, and consider the regulatory issues arising. Memorable case studies used to help understanding

Disruptive Technology in your sector

- Apply disruptive technology thinking to area of sector expertise, build confidence in understanding trends and provide discussion points for industry engagement.

Leading technologies in F1 How does F1 disrupt itself and where does it hold a leading position?

- Examples of disruptive technology introduced into F1 (wings, carbon fibre, hybrid powertrains), how competitors 'race' to adapt and level the playing field (or get an advantage)
- How technologies are supported by world class processes (e.g. the pit stop, the design cycle)
- Demonstration of how F1 uses disruptive technologies, how there are winners and how to implement technologies and processes quickly so you don't lose

COURSE AGENDA

Disruption from F1 into other industries. What technologies and processes have been used to disrupt other industries?

- Headline examples of disruptive technology from Williams: carbon fibre baby incubator, aerofoil in supermarkets, improving medical processes (crash cart &/or logistics)

Examples of F1 disruption by industry

- Airtek aircraft carbon fibre business class seat
- Future Fighter with BAE Systems
- Zephyr High Altitude Pseudo Satellite with Airbus

Manufacturing

- Sensors / IoT, data processing and improving production efficiency through pit stop methodology
- CFD to improve freezing process for Magnum ice creams
- Digitalisation and digital twins

Agriculture (selection from:)

- Connected vehicles controlled from a central point (like an F1 team's race control)
- Electrification using high power density F1-derived motors
- 3D printing / additive technology (e.g., for repairs)
- Parallel with other heavy machinery industries (e.g., open cast mining) AI and Machine Learning in F1: current state of the art and emerging opportunities, with potential future uses in industry

AI and Machine Learning in F1: current state of the art and emerging opportunities, with potential future uses in industry.

ZISHI™

Course outline

Applications of Quantitative Finance – Intermediate

Available as
In-house
In-person
Digital
Blended

APPLICATIONS OF QUANTITATIVE FINANCE – INTERMEDIATE

This course is specifically designed to bridge theoretical concepts with practical applications in the financial industry.

Spanning ten comprehensive modules, the course begins with an exploration of Fixed Income and Yield Curves, covering essential bond math, bond pricing, and relative value trading.

It delves into Interest Rate Derivatives, dissecting mechanics, pricing, and risk management of swaps and futures. Participants will gain insights into Credit Derivatives, understanding single-name CDS, CDS indices, and tranche trading.

The course also covers the dynamics of the Foreign Exchange market, Equity and Commodities Delta-1 trading, offering a deep dive into FX forwards, equity index futures, and commodities overview. Advanced topics include Option Pricing and Risk Management with analytical pricing methods, the Volatility Surface analysis, Interest Rate Options, and FX Barrier Options among other exotics.

This course is ideal for finance professionals seeking to enhance their expertise in quantitative finance tools and strategies, offering a blend of theoretical knowledge and practical insights to navigate complex financial instruments and markets effectively.

APPLICATIONS OF QUANTITATIVE FINANCE – INTERMEDIATE

LEARNING OBJECTIVES

- Understand Fixed Income Securities and Yield Curve Analysis: Participants will learn the foundational aspects of bond math, including pricing, yield relationships, duration, convexity, and how to engage in relative value trading using curve trades and butterflies.

- Master Interest Rate Derivatives: Gain in-depth knowledge of interest rate derivatives, including FRAs, interest-rate futures, swaps, and the transition from LIBOR to SOFR, alongside an understanding of the central clearing model and swaps risk management.

- Explore Credit Derivatives and Strategies: Learn the intricacies of single-name CDS, CDS indices, sub-indices, STCDOs, and tranche trading, including correlation, delta, and relative value trading strategies.

- Navigate the Foreign Exchange and Commodities Markets: Acquire skills in analyzing and trading in the FX spot market, forwards, swaps, carry trades, and options, as well as understand commodities trading, including futures and total return swaps.

- Option Pricing and Risk Management: Develop proficiency in option pricing using binomial trees, the Black-Scholes approach, Monte Carlo simulation, and understand delta-hedging, gamma, theta, and vega as measures of risk.

- Analyse the Volatility Surface and Exotic Options: Understand the construction and implications of the volatility surface for equities, commodities, and FX, including trading strategies involving Risk Reversals and Flys. Additionally, learn about interest rate options, caps, floors, European and Bermudan swaptions, and manage the risk of FX barrier options and other exotics.

COURSE AGENDA

Fixed Income and Yield Curves

- Essential 'bond math'
- Quotation conventions, clean and dirty price, accrued interest
- Bond pricing, yield defined, price/yield relationship
- Duration, DV01 and convexity
- Repo, carry and forward prices
- Relative value trading – curve trades, butterflies
- Corporate bonds and credit spreads
- Spread duration, CS01

Interest Rate Derivatives I

- FRAs and interest-rate futures
- Short rates – from LIBOR to SOFR
- Interest rate swaps, mechanics and quotation
- Intuitive pricing swaps pricing, PV01
- Clearing and settlement, the Central Clearing model
- Quantifying and managing swaps risk, DV01, bucket deltas
- Swaps trading – outright positions and curve trades

Interest Rate Derivatives II

- Swaps pricing done properly, the multi-curve approach
- Choosing the discount curve – why OIS?
- Simple introduction to 'bootstrapping' and curve construction

COURSE AGENDA

- Basis swaps and the market price of liquidity risk
- Asset swaps
- Cross-currency swaps, mechanics and structure
- Drivers of the cross-currency basis

Credit Derivatives

- Review of single-name CDS
- Standard contracts
- The cash-CDS basis, drivers of the basis, basis trading
- CDS indices and sub-indices
- Mechanics of an index-CDS trade
- STCDOs and tranche trading
- Tranches, correlation and delta
- RV trading strategies

Foreign Exchange

- Review of FX spot market quotation and conventions
- FX forwards – forward points versus the outright
- Where is the forward price? The cash-and-carry argument
- FX swaps, mechanics and applications
- Hedging foreign-currency assets into domestic currency
- FX carry trades
- FX options and barriers

COURSE AGENDA

Equity and Commodities Delta-1

- Commodities overview
- Index and commodity futures, mechanics margining and settlement
- Understanding the futures price – the no-arb forward
- Basis trading in equities, 'fair value' future vs. the traded price
- Understanding commodity forward curves – the 'convenience yield'
- Total return swaps in equities and commodities

Option Pricing and Risk Management

- Option pricing – review of alternative approaches
  - Binomial trees
  - Analytical pricing (the Black-Scholes approach)
  - Monte-Carlo simulation
- Delta-hedging and gamma
- Gamma vs. theta
- Vega as a measure of vol risk
- Hedging risk at the portfolio (aggregate) level
- P&L Attribution

The Volatility Surface

- What implied vol is all about
- Lognormal vol vs. absolute (bp) vol
- The vol surface for equities, commodities and FX
- Understanding the drivers of the smile and skew, the role of stochastic vol

COURSE AGENDA

- Volgamma and vanna, how they relate to smile and skew
- Trading the surface with Risk Reversals and flys
- Modelling vol dynamics

Interest Rate Options

- Caps and floors
- European swaptions, payoff and price
- Quoting rates vol – Normal vs. Lognormal
- Bermudan swaptions
- The IRD vol surface
- The callable bond market, the role of swaptions
- Constant Maturity Swaps

FX Barrier Options and Other Exotics

- Barrier options, conventions and terminology
- Barrier options and technical views
- Risk-management of barriers
- Digital options and range accruals
- Vol and variance swaps

In-House Training

All ZISHI courses can be customised to your unique requirements.

Whether one-to-one or multi-faceted group deliveries, entry level or boardroom executives, and from design through to delivery, ZISHI is best placed to become your trusted training partner, developing programmes and learning pathways to meet your specific operational needs.

Whatever your professional development training requirements, we have the expertise, knowledge and ability to deliver first-class results at every level, every time.

CONTACT US

Please get in touch to discuss how our bespoke solutions already help world-leading financial services organisations meet their professional development needs and how we can do the same for yours.

Contact us today to discuss your requirements:

+44 (0)20 4551 8568
info@thezishi.com

ZISHI™

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www.thezishi.com

info@thezishi.com

+44 (0)204 551 8568

linkedin.com/
company/zishi

the_zishi

the_zishi