

COURSE OVERVIEW LE0037
Quantitative Analysis

Course Title

Quantitative Analysis

Course Date/Venue

Session 1: May 18-22, 2025/Boardroom 1,
 Elite Byblos Hotel Al Barsha,
 Sheikh Zayed Road, Dubai, UAE
 Session 2: October 20-24, 2025/Fujairah
 Meeting Room, Grand Millennium
 Al Wahda Hotel, Abu Dhabi, UAE

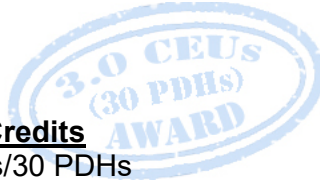


Course Reference

LE0037

Course Duration/Credits

Five days/3.0 CEUs/30 PDHs

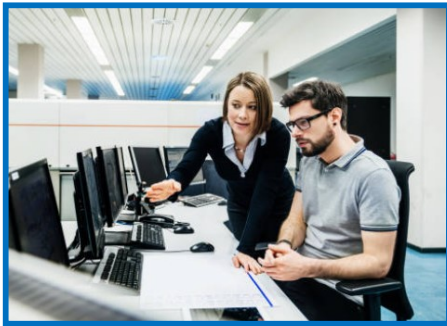


Course Description

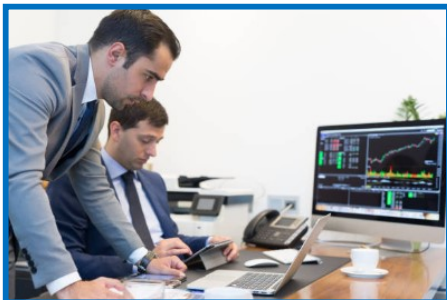


This practical and highly-interactive course includes real-life case studies and exercises where participants will be engaged in a series of interactive small groups and class workshops.

This course is designed to provide participants with a detailed and up-to-date overview of Quantitative Analysis. It covers the qualitative and quantitative analysis and the basic mathematical and statistical concepts; the types of data and measures of central tendency; the data collection techniques, sampling methods and graphical representation; the basic probability concepts and probability distributions; the null and alternative hypotheses testing; and estimating population parameters and margin of error.



During this interactive course, participants will learn the paired and unpaired t-tests and assumptions and interpretations; the one-way and two-way ANOVA, F-statistic and p-values; the simple linear regression covering regression equation, coefficients, assumptions and diagnostic tests; the multiple linear regression comprising of adjusted R-squared, model fit and handling multicollinearity; the correlation analysis, time series analysis and non-linear regression models; the supervised and unsupervised learning and common algorithms, quantitative tools and software; and the factor analysis, cluster analysis, financial quantitative analysis, marketing analytics and operational research.



Course Objectives

Upon the successful completion of this course, each participant will be able to:-

- Apply and gain an in-depth knowledge on quantitative analysis
- Differentiate qualitative and quantitative analysis and discuss the basic mathematical and statistical concepts covering the types of data and measures of central tendency
- Carryout data collection techniques, sampling methods and graphical representation
- Explain the basic probability concepts and probability distributions
- Apply null and alternative hypotheses testing and estimate population parameters and margin of error
- Identify paired and unpaired t-tests and assumptions and interpretations
- Describe one-way and two-way ANOVA including F-statistic and p-values
- Illustrate simple linear regression covering regression equation, coefficients, assumptions and diagnostic tests as well as multiple linear regression comprising of adjusted R-squared, model fit and handling multicollinearity
- Employ correlation analysis, time series analysis and non-linear regression models
- Differentiate supervised and unsupervised learning and identify common algorithms, quantitative tools and software
- Apply factor analysis, cluster analysis, financial quantitative analysis, marketing analytics and operational research

Exclusive Smart Training Kit - H-STK®



Participants of this course will receive the exclusive “Haward Smart Training Kit” (H-STK®). The H-STK® consists of a comprehensive set of technical content which includes **electronic version** of the course materials conveniently saved in a **Tablet PC**.

Who Should Attend

This course provides a basic overview of all significant aspects and considerations of quantitative analysis for analytical chemists, laboratory technicians and scientists, pharmaceutical scientists, biotechnologists, forensic scientists, pathologists and clinical laboratory scientists, researchers, business and finance professionals, data scientists and analysts, policy analysts, healthcare and medical researchers, social scientists, marketing and market research professionals, engineers and scientists, entrepreneurs and startups and those who are interested to develop skills in quantitative research, data analysis, and statistical methods.

Course Fee

US\$ 5,500 per Delegate + **VAT**. This rate includes H-STK® (Haward Smart Training Kit), buffet lunch, coffee/tea on arrival, morning & afternoon of each day.

Accommodation

Accommodation is not included in the course fees. However, any accommodation required can be arranged at the time of booking

Training Methodology

All our Courses are including **Hands-on Practical Sessions** using equipment, State-of-the-Art Simulators, Drawings, Case Studies, Videos and Exercises. The courses include the following training methodologies as a percentage of the total tuition hours:-

- 30% Lectures
- 20% Practical Workshops & Work Presentations
- 30% Hands-on Practical Exercises & Case Studies
- 20% Simulators (Hardware & Software) & Videos

In an unlikely event, the course instructor may modify the above training methodology before or during the course for technical reasons.

Course Certificate(s)

Internationally recognized certificates will be issued to all participants of the course completed a minimum of 80% of the total tuition hours.

Certificate Accreditations

Certificates are accredited by the following international accreditation organizations:-

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British Accreditation Council (BAC)

Haward Technology is accredited by the **British Accreditation Council for Independent Further and Higher Education** as an **International Centre**. BAC is the British accrediting body responsible for setting standards within independent further and higher education sector in the UK and overseas. As a BAC-accredited international centre, Haward Technology meets all of the international higher education criteria and standards set by BAC.
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The International Accreditors for Continuing Education and Training (IACET - USA)

Haward Technology is an Authorized Training Provider by the International Accreditors for Continuing Education and Training (IACET), 2201 Cooperative Way, Suite 600, Herndon, VA 20171, USA. In obtaining this authority, Haward Technology has demonstrated that it complies with the **ANSI/IACET 2018-1 Standard** which is widely recognized as the standard of good practice internationally. As a result of our Authorized Provider membership status, Haward Technology is authorized to offer IACET CEUs for its programs that qualify under the **ANSI/IACET 2018-1 Standard**.

Haward Technology's courses meet the professional certification and continuing education requirements for participants seeking **Continuing Education Units (CEUs)** in accordance with the rules & regulations of the International Accreditors for Continuing Education & Training (IACET). IACET is an international authority that evaluates programs according to strict, research-based criteria and guidelines. The CEU is an internationally accepted uniform unit of measurement in qualified courses of continuing education.

Haward Technology Middle East will award **3.0 CEUs** (Continuing Education Units) or **30 PDHs** (Professional Development Hours) for participants who completed the total tuition hours of this program. One CEU is equivalent to ten Professional Development Hours (PDHs) or ten contact hours of the participation in and completion of Haward Technology programs. A permanent record of a participant's involvement and awarding of CEU will be maintained by Haward Technology. Haward Technology will provide a copy of the participant's CEU and PDH Transcript of Records upon request.

Course Instructor(s)

This course will be conducted by the following instructor(s). However, we have the right to change the course instructor(s) prior to the course date and inform participants accordingly:



Mr. Paul Patsi, MSc, BSc, is a Senior Analytical Chemist and an International Expert in Water & Waste Water Treatment Technology with over 25 years of extensive experience in Analytical Laboratory and Water & Wastewater Treatment Engineering. His expertise covers Laboratory Assessment, Microbiological Quality Assurance, Analytical Chemistry, Statistical Analysis, Laboratory Safety, Equipment & Infrastructure Management, Budgeting & Planning of Laboratory Consumables, Business Administration, Personnel Management, Laboratory Management, Chemical Analysis, Laboratory Auditing, Risk Assessment, Microbiological Analysis of Water & Waste Water, Waste Water Treatment Analysis, Water Chemistry, HACCP, ISO 22000, ISO 17025, ISO 9001, Good Manufacturing Practice (GMP), Good Hygiene Practice (GHP) and Good Laboratory Practice (GLP). He is also an expert in microbiological indoor air quality, water biology, food sampling and calibration. He is currently the Head of Industrial Analytical Laboratory of PINDOS wherein he is in-charge of the budgeting, auditing, consumables, suppliers, personnel management, equipment and infrastructure management along with waste water treatment and water/environmental legislation.

During his career life, Mr. Paul has held key positions such as the **Head of Microbiology & Chemical Laboratory, Head of Quality Control, Technical Consultant, Research Projects Specialist, Scientific Consultant, Biologist-Scientific Expert and Biologist** for multi-billion companies like the **European Union, Help LTD, Lake Pamvotis Municipality Company, Hellenic Centre for Marine Research, Cargill and Nestle** just to name a few.

Mr. Paul has a **Master's degree in Food Science & Food Technology** from the **University of Ioannina, Greece** and a **Bachelor's degree in Biology** from the **Aristotle University of Thessaloniki, Greece**. He is a **Certified Instructor/Trainer** and a **Member** of the **Society for Applied Microbiology, Society of Biological Scientist** and the **Global Coalition for Sustained Excellence in Food & Health Protection**. He has further delivered various trainings, workshops, seminars, courses and conferences internationally.



Course Program

The following program is planned for this course. However, the course Instructor(s) may modify this program before or during the course for technical reasons with no prior notice to participants. Nevertheless, the course objectives will always be met:

Day 1

0730 – 0800	Registration & Coffee
0800 – 0815	Welcome & Introduction
0815 – 0830	PRE-TEST
0830 – 0930	The Essence of Quantitative Analysis Definition & Importance • Qualitative versus Quantitative Analysis
0930 – 0945	Break
0945 – 1030	Basic Mathematical & Statistical Concepts Types of Data: Nominal, Ordinal, Interval, Ratio • Measures of Central Tendency: Mean, Median, Mode
1030 – 1130	Data Collection Techniques Surveys & Questionnaires • Experiments & Observational Studies
1130 – 1215	Sampling & Data Representation Sampling Methods • Graphical Representation: Bar Charts, Histograms, Scatter Plots
1215 – 1230	Break
1230 – 1330	Probability Basic Probability Concepts • Probability Distributions
1330 – 1420	Hypothesis Testing: An Overview Null & Alternative Hypotheses • Types of Errors: Type I & Type II
1420 – 1430	Recap Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow
1430	Lunch & End of Day One

Day 2

0730 – 0830	Confidence Intervals Estimating Population Parameters • Margin of Error
0830 – 0930	t-Tests Paired & Unpaired t-Tests • Assumptions & Interpretations
0930 – 0945	Break
0945 – 1100	ANOVA (Analysis of Variance) One-Way & Two-Way ANOVA • F-Statistic & p-Values
1100 – 1215	Simple Linear Regression Regression Equation & Coefficients • Assumptions & Diagnostic Tests
1215 – 1230	Break
1230 – 1330	Multiple Linear Regression Adjusted R-Squared & Model Fit • Handling Multicollinearity
1330 – 1420	Correlation Analysis Pearson's & Spearman's Correlation Coefficients • Causation versus Correlation
1420 – 1430	Recap Using this Course Overview, the Instructor(s) will Brief Participants about the Topics that were Discussed Today and Advise Them of the Topics to be Discussed Tomorrow
1430	Lunch & End of Day Two



Day 3

0730 – 0830	Time Series Analysis <i>Components: Trend, Seasonality, Cycles • Forecasting Models: ARIMA, Exponential Smoothing</i>
0830 – 0930	Non-linear Regression Models <i>Logarithmic & Exponential Transformations • Polynomial Regression</i>
0930 – 0945	Break
0945 – 1100	Machine Learning <i>Supervised versus Unsupervised Learning • Common Algorithms: Decision Trees, Clustering</i>
1100 – 1215	Quantitative Tools & Software <i>Introduction to R & Python • Excel's Analysis ToolPak</i>
1215 – 1230	Break
1230 – 1330	Factor Analysis <i>Reducing Dimensionality • Rotations & Factor Loadings</i>
1330 – 1420	Cluster Analysis <i>Hierarchical & K-Means Clustering • Determining the Number of Clusters</i>
1420 – 1430	Recap <i>Using this Course Overview, the Instructor(s) will Brief Participants about the Topics Discussed Today and Advise Them of the Topics to be Discussed Tomorrow</i>
1430	Lunch & End of Day Three

Day 4

0730 – 0830	Financial Quantitative Analysis <i>Risk & Return Analysis • Portfolio Optimization</i>
0830 – 0930	Marketing Analytics <i>Customer Segmentation • Predictive Analytics for Sales Forecasting</i>
0930 – 0945	Break
0945 – 1100	Operational Research <i>Linear Programming • Network Analysis</i>
1100 – 1230	Case Study 1: Application in Healthcare (e.g. Predicting Patient Readmissions)
1230 – 1245	Break
1245 – 1330	Case Study 2: Quantitative Analysis in Supply Chain (e.g. Optimizing Inventory Levels)
1330 - 1345	Wrap-Up & Future Trends <i>The Evolving Nature of Quantitative Analysis • Big Data & The Future of Analytics</i>
1345 – 1400	Course Conclusion <i>Using this Course Overview, the Instructor(s) will Brief Participants about the Course that were Covered During the Course</i>
1400 – 1415	POST-TEST
1415 – 1430	Presentation of Course Certificates
1430	Lunch & End of Course

Practical Sessions

This practical and highly-interactive course includes real-life case studies and exercises:-



Course Coordinator

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