

Hands on Consumer Driven Product Optimisation

A course designed to give you the knowledge, practice and tools to analyse consumer test data and to optimise the sensory properties of foods, beverages and personal products.

Course Developed and Written by Hal MacFie and Anne Hasted

Presented by Anne Hasted, Qi Statistics Ltd

23rd – 24th/25th October 2019

Venue:

**iB Espaces & Services
Tour Atlantique,
La Défense FR,
1 Place de la Pyramide,
92911 Paris,
France**

Course Summary

The course is designed to take you through the key methods that are used in consumer science and explain how they work and how they are applied to consumer data. The first two days cover techniques that can be applied to studies testing from two to twelve or more products. The third day, which is optional, focuses on techniques for mapping and modelling liking using sensory, analytic or compositional data and requires tests to be run on a minimum of six products. Throughout the course emphasis is given to the practical decision making based on the results of each analysis. Participants will apply the methods to real life data using XLSTAT routines and will be guided by the written solutions that are a unique feature of our training. These solutions give you the possibility to pick up the notes after 6 months or a year and remind yourself how the technique works and then apply it to your own data.

Software

In the training room you will have a computer with XLSTAT installed but you are welcome to bring your own laptop if you prefer. We can provide you with a licence for XLSTAT at a 30% discount either as you book or at the end of the training.

The Trainer

Anne Hasted began her career as an academic statistician at Reading University. She is the founder and senior consultant at Qi Statistics Ltd, a UK based consultancy, offering statistical training and support to research and industry. She has many years training and consultancy experience in the food industry, particularly in the areas of consumer and sensory research and is well recognised for providing user friendly training courses.

Course Content

Day 1: Exploratory and Analytic Methods for Consumer Science

This first day provides both a refresher and consolidation of the two key analytic and exploratory techniques used in our field: Analysis of Variance and Principal Components Analysis. We will also consider frequency analysis and the associated mapping using Correspondence Analysis. Towards the end of the afternoon we start to introduce the simple ways of linking liking and sensory or analytic data using correlation and simple regression to identify curvature and possible sensory optimisation.

Deliverables: *Testing for product differences using analysis of variance, multiple comparison tests, critical evaluation of statistical significance. Visualising product differences over many variables using Principal Components (with rotation) – theory, application and analysis interpretation. Mapping associations in frequency data using Correspondence Analysis. Identifying simple drivers of liking using linear and quadratic regression.*

Day 2: Product and Concept Investigation and Optimisation – Techniques for Trials with Varying numbers of products

This section is designed for the very important class of trials that collect central location, internet survey or home use data on 1 to 4 product samples. Preference mapping models are not possible with these trials but there are many techniques that are well suited to product optimisation and which can be applied to a single product trial. We start by investigation analysis of Just about Right (JAR) scale data and linking to product liking using penalty analysis. CATA (Check All That Apply) has become increasingly popular as a means of collecting sensory, emotional or usage data from consumers and we investigate the excellent XLSTAT CATA analysis module together with the possibility of introducing a notional ideal product in both CATA data and more conventional scaled attribute data collection. The development of CATA analysis to RATA (Rate All That Apply) is also discussed.

In the afternoon we start with a segmentation masterclass: understanding and experience with the three main segmentation algorithms. Practical guidance on selecting the correct algorithm for the task and then selecting the optimal cluster set will be given together with approaches to identifying outliers within each cluster.

Methods for cluster visualisation and validation will be discussed including Internal Preference Mapping. . Finally many concept trials ask multiple questions about one or more concepts – how can we examine segmentation in the response to a single concept?

Deliverables: Penalty Analysis for single product optimisation, Ideal Profiling, CATA data analysis, KANO analysis using CATA data, RATA analysis Understanding of AHC, KMEANS and Latent Class Segmentation. Cluster Diagnostics and stability testing. Demographic and psychographic analyses. Internal Preference Mapping. Factor Analysis of question batteries and single product clustering.

Day 3: Segmentation, Mapping and Portfolio Optimisation Using Multi Product Tests

The third day, which is optional and more technical, starts with investigation of the XLSTAT Preference Mapping module and its application to optimisation using overall means, cluster means and individual scores. In some categories preference mapping on consumer measures of product characteristics are gradually replacing sensory panel scores and a short section will exemplify this approach. We show how to characterise the optimum product using reverse regression. We also introduce partial least squares as a widely used approach to building prediction models for liking. An assessment of the role and validity of internal, external and probabilistic models in this application will be discussed

Deliverables: External Preference Mapping, Reverse Regression. Optimising product portfolios across segments and markets. Partial Least Squares regression. Comparing internal and external models. Factor Analysis and Segmentation on question batteries.

Training Facility



Microtek Labs

iB Espaces & Services

Tour Atlantique,

La Défense FR,

1 Place de la Pyramide, 92911 Paris

France

The training facility is in the Paris commercial area La Défense, there are excellent transport links to the centre of Paris (15 minutes) by RER, Metro and Tram. <https://www.ladefense.fr/en>

Course Schedule

October 23rd	Exploratory and Analytic Methods for Consumer Science
9.00-9.15	Introductions
9.15-10.45	Analytical: Analysis of Variance One and two way analysis of variance tables for monadic and sequential monadic tests, least significant difference, multiple comparison tests, statistical significance. Assumptions – which are important? XLSTAT exercises
	<i>Break</i>
11.00-12.30	Exploratory: Principal Component Analysis Definitions- Covariance and correlation. Graphical explanation, scaling, product maps, correlation maps, biplots. Interpretation. Rotating for interpretability. XLSTAT exercises
12.30-13.30	<i>Lunch</i>
13.30-14.30	Exploratory: Correspondence Analysis. Frequency data applications, theory and interpretation. Application to CATA data. XLSTAT exercises
	<i>Break</i>
14.45-15.45	Exploratory: Cluster Analysis Distance and similarity measures, AHC clustering algorithm. Dendrogram, defining clusters. XLSTAT exercises
15.45-17.00	Analytical- Linear, Quadratic regression to identify drivers of liking. Ideal point model, quadratic response, principal component regression, surface response diagrams, picking an optimum. XLSTAT exercise
October 24th	Product and Concept Investigation and Optimisation – Scales and Techniques for Trials with Varying Numbers of Products
9.00-10.00	JAR Scales and Penalty Analysis Advantages and disadvantages of approach, relationship with liking, XLSTAT Penalty Analysis routine. Interpretation and decision making. XLSTAT Exercises
10.00-11.00	Ideal Product Profiling

	Ideal product scoring, radar plotting, mapping and analysis. Product optimisation. XLSTAT Exercises
11.00-11.15	Break
11.15-12.30	CATA Data and Kano Impact Analysis CATA Data, significance testing, product mapping using correspondence analysis or PCA. KANO approach using an ideal product. XLSTAT Exercises
12.30-13.30	Lunch
13.30-14.45	Segmentation Masterclass: Study design aspects. Data preparation, dealing with order effects. Methods: AHC v Kmeans v Latent class. Choosing the method. Deciding how many clusters. XLSTAT exercises. Kmeans – testing stability of solution. Trimming clusters to remove outliers.
14.45-15.15	Internal Preference Mapping Different approaches to preference mapping. Method and interpretation, application to cluster validation
15.15-15.30	Break
15.30-16.30	Demographics, Psychographics and Segments Investigating demographic associations with liking using nested ANOVA. Investigating relationships between clusters and demographics using Chi-Squared, correspondence analysis and CHAID. XLSTAT Exercises
16.30-17.15	Concept and Single Product Trials Factor analysis of concept question batteries – interpretation and application. Segmentation analysis of respondents. XLSTAT Univariate clustering of single product liking
October 25th	Mapping and Modelling Liking for Optimisation and Prediction
9.00-10.00	Review of Preference Mapping Models using Principal Components Circular, elliptical and quadratic models, visualisation using contour plots. XLSTAT workshop and Qi Prefplotter
10.00-11.15	Preference Mapping using XLSTAT PREFMAP Ideas behind the method, different strategies (overall v segment means or individuals) Contour plotting. Interpretation of output, decision making. XLSTAT Exercises
11.15-11.30	Break
11.30-12.00	What Sensory Properties will the desired product have?

	Using the preference maps to identify “optimal” products. Estimating their sensory properties using reverse regression. XLSTAT exercise
11.45-12.30	Liking Modelling using Partial Least Squares
12.30-13.30	Lunch
13.30-14.30	PLS Modelling XLSTAT Exercise
14.30-15.30	Comparison of Preference Mapping Techniques. Prefmap, PLS, other approaches including probabilistic unfolding -illustrated and compared using a case study
15.30-16.00	Approaches to Open Ended Comments
16.00	Close

Pricing and Fees*

Registration Fee - Course attendance 3 days	€2400
Registration Fee- Course attendance day 1 and 2 only	€1700
XLSTAT Base + Sensory Module (1 year licence- commercial)	€430
XLSTAT Base + Sensory Module (Perpetual licence including 1 year support/maintenance- commercial)	€1340

*Payment may be made in £, \$ or Eu. The current exchange rate will be applied at the time of payment.

- Course fees reduced by 10% for members of academia
- Fees include folder of course material, lunch each day and an optional course dinner.
- Discounts: We offer a 10% discount on registrations when two or more people from the same company register for the same course at the same time.



Book online from this link: <https://www.qistatistics.co.uk/upcoming-training/qi-hal-macfie-courses>

*To make a payment in \$ or Eu please choose the ‘pay cheque or direct payment’ option on the booking page after adding the items to your basket and we will be in touch to take your payment, but your booking will still be registered in the booking system.



Course description and details

CONSUMER

IMPORTANT NOTES:

Registration Policy: Registration is not final until payment is received. Unpaid spaces will be opened to new registrants 30 days ahead of the course. Virtual attendees must register and make payment at least 30 days before the start of the course to secure a virtual seat.

Payment: Payment may be made in, Euros, GB pounds or US Dollars via the Qi Statistics website or by transfer into Qi Statistics' currency accounts. Contact the course administrator Karen Starke : karen@qistatistics.co.uk for routing and IBAN details of the currency account you require.

Refund policy: Cancellation of registration can be made up to 30 days ahead, and return of payments, minus reasonable administrative expenses, will be made for these cancellations. Cancellations within 15 to 30 days of the course start will receive a credit for a future course. Registrants who fail to attend or cancel less than 15 days prior to the seminar start date are responsible for the entire fee. Substitution of another person for the same course may be made at any time.

Course Cancellation: Qi Statistics Ltd retains the right to cancel the course 30 days before the start date if less than 4 delegates have registered by that date. Please do not book your travel before this.

For further information or questions contact us on info@qistatistics.co.uk or phone +44 (0)1189 345722