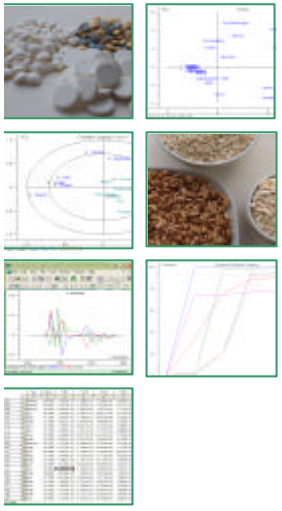
The Unscrambler® by CAMO

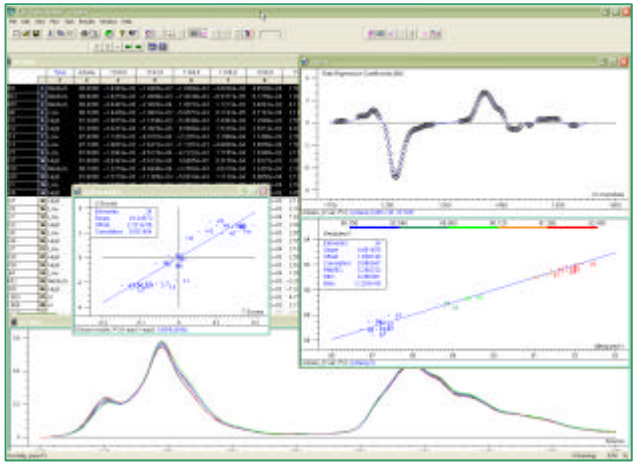
TRAINING COURSES

MULTIVARIATE DATA ANALYSIS 1

MULTIVARIATE DATA ANALYSIS 2

EXPERIMENTAL DESIGN





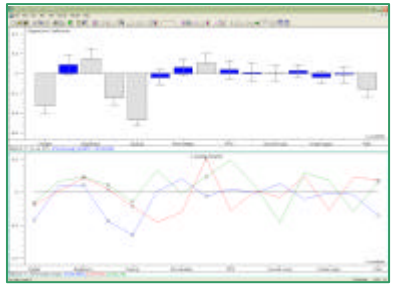
OSLO, NORWAY

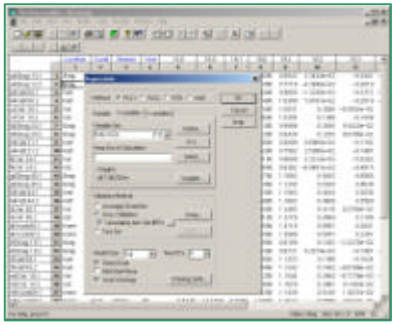
2004-2005

CAMO
Powering the Adaptive Enterprise

Course content

Modern data sets contain many variables where the most interesting trends are hidden in a combination of the variables.
Course participants will learn how to interpret complex data quickly and confidently using most modern multivariate techniques.
The courses are composed of lectures, demonstrations and computer exercises on datasets using The Unscrambler ® , to illustrate and learn Multivariate Data Analysis.
The courses are inspired from the industrial opportunities offered by chemometrics methods.
With a non-mathematical approach, our participants can quickly and safely start using the methods in their own work to optimize, classify or predict products and processes.



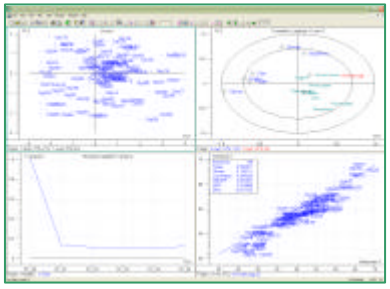


Who should participate?

Our courses are addressed to all scientists and engineers who collect and analyze data e.g. within quality control, process analysis, R&D, spectroscopy... or anyone confronted with situations where the understanding of multivariable relationships is central.
Prior knowledge of statistics or The Unscrambler is not required to attend our courses.

Who holds the courses?

•Valérie Lengard is Director of European Operations at CAMO in Norway and Product Manager for The Unscrambler. She has an MSc. in Food Science, Sensometrics and Chemometrics from ENITIAA (Nantes, France). Since 1998 she has trained over 300 scientists and engineers to the use of chemometrics methods in research and industry applications. She holds courses in English, Norwegian and French.



•Martin Kermit is Senior Analyst at CAMO in Norway. He holds a Ph.D. in informatics with a focus on statistical analysis and multivariate methods and gives courses in English and Norwegian.

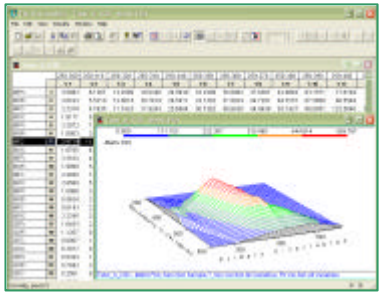
Multivariate Data Analysis 1

3-day course

- The world is multivariate –Introduction to multivariate data modelling
- When are multivariate methods useful?
- Principal Component Analysis (PCA)
- Multivariate regression:
  - MLR- Multi Linear Regression
  - PCR- Principal Component Regression
  - PLS- Partial Least Squares
- Relevant data collection
- Multivariate modelling step by step
- Pretreatment and scaling
- Detecting and dealing with outliers
- Calibration, validation
- Prediction
- The different validation methods
- Basic rules for successful data analysis



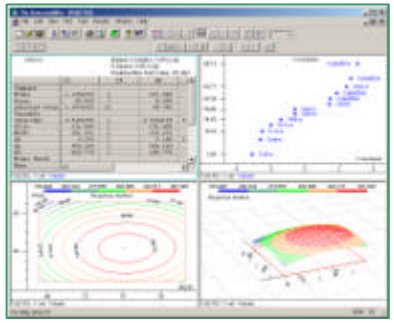
PCA
PLS-R
MLR
SIMCA
PLS-DA
3Way-PLS
DOE
ANOVA



Multivariate Data Analysis 2

2-day course

This course is addressed to the scientists who are familiar with the principles and use of multivariate methods and wish for further training. A stress is put on diagnostics and model improvement. The course programme includes theory and exercises on PCA, regression, prediction and classification methods.



Experimental Design

3-day course

Introduction to experimental design through smart and structured methodology to design and conduct experimental plans and analyze the experimental results.

COURSE SCHEDULE

Experimental Design- 20-22 April 05 / 12-14 Oct 05
Multivariate Data Analysis 1- 10-12 Nov 04 / 9-11 Feb 05 / 28-30 Sept 05
Multivariate Data Analysis 2- 15-16 Nov 04 / 25-26 May 05 / 16-17 Nov 05

PRICES

The course fee includes coffee-break, lunch and course material.

University	Non-profit Research Organization	Industry
NOK 4.200/ € 500	NOK 4.900/ € 600	NOK 5.800/ € 700

SCHEDULE

1st day: 10:00 – 17:00	2nd day: 09:00 – 17:00	3rd day: 09:00 – 16:00

- Maximum participants: 10
- Deadline for registrations: 3 weeks before course-start.
- Includes a free 30-day test installation of The Unscrambler ® to be able to apply the methods right away in your own area of work.
- In addition, all participants will be offered to purchase The Introducer book (*Multivariate Data Analysis in Practice,* by prof. Kim Esbensen) at a discounted price.

GENERAL TERMS

Payment: 30 days net from date of invoice.

Cancellation/substitution: Cancellations up to 3 weeks before the start date of the course will be refunded with 50% of the registration fee. Cancellations made less then 3 weeks before the start date of the course will not be refunded. The course participants may be substituted provided that Camo is notified.

Registration Form

COURSE:_____

Company Name:_____

Name:_____

E-mail:_____ Phone: _____

Address:_____

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