

European Conference on Data Analysis (ECDA 2022)

14 - 16 September 2022, University of Naples Federico II, Italy

**Tutorial:  
Statistical Learning for Sensory and Consumer Science**

by

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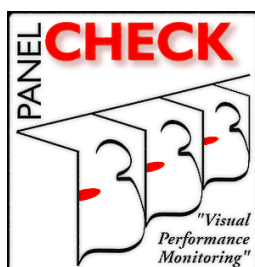
14<sup>th</sup> – 15<sup>th</sup> September 2022  
Complesso dei SS. Marcellino e Festo  
Largo S. Marcellino 10, Naples (Italy)

**Summary**

The course provides a thorough introduction to recent advances in statistical learning applied to sensory and consumer studies. Participants will get an overview of some of the most important statistical methods (principal component analysis, multiple factor analysis, partial least squares regressions, projective mapping, preference mapping, etc.) that can be used for obtaining valuable information from sensory and consumer data.

The tutorial will cover theoretical backgrounds, examples, case studies and software demonstrations. The statistical methods will be implemented using free statistical software (PanelCheck, ConsumerCheck) and commercial software (XLSTAT). All course participants will be entitled to a free XLSTAT software license valid for six months.

There are no prerequisites for participation. However, a preliminary understanding of principal components analysis (PCA) and analysis of variance (ANOVA) would be advantageous.



**XLSTAT**  
by Addinsoft

## **Program:**

### **Wednesday 14 September 2022**

**9.00 – 9.15** Welcome **Rosaria Romano**

**9.15 – 11.15** **Tormod Næs**

- Intro on typical purposes/goals in sensory and consumer science, something about distinctions and different types of data sets
- Basic tools, principal component analysis (PCA), multiple factor analysis (MFA), partial least squares regression (PLSR)
- Analysis of descriptive sensory data (interpretation, individual differences, standardization, quality control of panel)

**11.15 – 11.30** **Break**

**11.30 – 12.30** **Oliver Tomic**

- Software demonstration: PanelCheck, ConsumerCheck

**12.30 – 13.00** **Rosaria Romano**

- Software demonstration: XLSTAT

### **Thursday 15 September 2022**

**9.00 – 10.45** **Tormod Næs**

- Rapid descriptive sensory methods, Projective mapping, check-all-that-apply (CATA), temporal check-all-that-apply (TCATA), polarized sensory positioning (PSP) (consumers and trained)
- Using MFA and PCA for consensus and individual differences
- Analysis of consumer liking data and relations to descriptive sensory data
- Internal and external preference mapping, individual differences
- Relations to external questionnaire data (consumer attributes, gender, age, attitudes etc), L-shape data sets

**10.45 – 11.00** **Break**

**11.00 – 12.30** **Oliver Tomic**

Software demonstration: PanelCheck, ConsumerCheck

**12.30 – 13.00** **Rosaria Romano**

- Software demonstration: XLSTAT

## **Registration**

Deadline for Early-bird registration:  
15<sup>th</sup> July 2022

## **Registration fee**

Participation is **free** for all participants of the ECDA2022 conference and PhD students of the Federico II University of Naples.

For academics who do not fall into the previous two categories (non-ECDA2022 participants and non-UNINA doctoral students), participation is only possible by registering for the ECDA2022 conference and paying the "standard registration" fee. For private/company, participation is only possible by registering for the ECDA2022 conference and paying 500 euros.

For organizational reasons, **registration is required** by filling out the registration form by 15 July.

Registration includes course materials and certification of attendance.  
The course is open to a **maximum of 35 participants**.

## **Apply now**

[Registration Form](#)

## **Info**

Rosaria Romano

[rosaroma@unina.it](mailto:rosaroma@unina.it)

For organizational reasons, if at any time you decide not to participate in the Tutorial, please send an email to [rosaroma@unina.it](mailto:rosaroma@unina.it)

## Suggested readings

### Recent Papers

- J.C. Castura, M. Meyners, P. Varela, T. **Næs** (2022). Clustering consumers based on product discrimination in check-all-that-apply (CATA) data, *Food Quality and Preference*, Volume 99.
- D. Asioli, Q. C. Nguyen, P. Varela, T. **Næs** (2022). Comparison of different ways of handling L-shaped data for integrating sensory and consumer information, *Food Quality and Preference*, Volume 96.
- J.C. Castura, D.N. Rutledge, C.F. Ross, T. **Næs** (2022). Discriminability and uncertainty in principal component analysis (PCA) of temporal check-all-that-apply (TCATA) data, *Food Quality and Preference*, Volume 96.
- O. **Tomic**, A. Kuznetsova, P.B. Brockhoff, T. Graff, T. **Næs**. ConsumerCheck: A Software for Analysis of Sensory and Consumer Data, arXiv preprint arXiv:2201.04020
- T. **Næs**, O. **Tomic**, I. Endrizzi, P. Varela. Principal components analysis of descriptive sensory data: Reflections, challenges, and suggestions, *Journal of Sensory Studies*, 36 (5), e12692
- I. Berget, S. Bech, D. Giacalone, S. Moulin, M.E. Pedersen, P. Varela, T. **Næs**. Sound quality perception of loudspeakers evaluated by different sensory descriptive methods and preference mapping, *Journal of Sensory Studies*, 36 (1), e12620
- C. Davino, T. **Næs**, R. **Romano**, D. Vistocco (2022). A quantile regression perspective on external preference mapping, *AStA Advances in Statistical Analysis*, 1-27.
- D. Asioli, I. Berget, T. **Næs** (2018). Comparison of different clustering methods for investigating individual differences using choice experiments, *Food Research International*, 111, 371-378, 2018
- R. **Romano**, C. Davino, T. **Næs** (2014). Classification trees in consumer studies for combining both product attributes and consumer preferences with additional consumer characteristics, *Food Quality and Preference*, 33, 27-36.
- R. **Romano**, P.B. Brockhoff, M. Hersleth, O. **Tomic**, T. **Næs** (2008). Correcting for different use of the scale and the need for further analysis of individual differences in sensory analysis, *Food Quality and Preference*, 19(2), 197-209

### Books

- T. **Næs**, P.A. Varela, I. Berget, *Individual differences in sensory and consumer science: Experimentation, analysis and interpretation*, Woodhead Publishing
- T. **Næs**, P.B. Brockhoff, O. **Tomic** (2011). *Statistics for sensory and consumer science*. John Wiley & Sons.
- P. Lea, T. **Næs**, M. Rødbotten (1997). *Analysis of variance for sensory data*. John Wiley.
- T. **Næs**, E. Risvik (1996). *Multivariate Analysis of Data in Sensory Science*. Elsevier.