

Statistical Techniques & Tools in MS Research

MONDAY, 8 JUNE 2026

- 08.45** **Welcome & Introduction**
*Maria Pia Sormani (Genoa, IT), Marcello Moccia (Naples, IT),
Jaume Sastre - Garriga (Barcelona, ES)*
- 09.00 - 10.30** **Session 1: Basic concepts - Statistics**
Chairs: Maria Pia Sormani (Genoa, IT), Bruno Stankoff (Paris, FR)
- 09.00 The hypothesis test: The meaning of p value, sample size and
power. How to interpret statistical results of a study.
Maria Pia Sormani (Genoa, IT)
- 09.30 Statistical tests: non-parametric vs. parametric approaches,
univariate and multivariate methods
Marta Ponzano (Genoa, IT)
- 10.00 Discussion
- 10.30 - 11.00** **Coffee Break**
- 11.00 - 12.30** **Session 1 (continued): Basic concepts - Study design**
Chairs: Matilde Inglese (Genoa, IT), Carmen Tur (Barcelona, ES)
- 11.00 Epidemiological studies
Raffaele Palladino (Naples, IT)
- 11.30 Clinical trials: From animal models to phase 3.
The standard designs in MS
Brian Healy (Boston, US)
- 12.00 Discussion
- 12.30 - 14.00** **Lunch Break**

- 14.00 - 15.30** **Session 2: Observational studies: Study design and methods**
Chairs: Mar Tintoré (Barcelona, ES), Marcello Moccia (Naples, IT)
- 14.00 Propensity scores and methods for adjusting baseline confounders
Tomas Kalincik (Melbourne, AUS)
- 14.30 Impact of missing data and methods for missing data imputation
Lisa Hofer (Basel, CH)
- 15.00 Discussion
- 15.30 - 16.00** **Coffee Break**
- 16.00 - 17.00** **Practical Session 1**
- 16.00 Practical Session 1 - Data collection with RedCap
Irene Schiavetti (Genoa, IT)
- 17.00** **End of Day 1**
- 19.00** **Dinner**

TUESDAY, 9 JUNE 2026

- 09.00 - 10.30** **Session 3: Beyond conventional trial designs**
Chairs: Frauke Zipp (Mainz, DE),
Jaume Sastre - Garriga (Barcelona, ES)
- 09.00 Adaptive designs
Jeremy Chataway (London, UK)
- 09.30 Meta - analyses and network meta - analyses
Konstantina Chalkou (Bern, CH)
- 10.00 Discussion
- 10.30 - 11.00** **Coffee Break**
- 11.00 - 12.30** **Session 4: Beyond conventional trial designs**
Chairs: Cristina Granziera (Basel, CH), Gabriel Bsteh (Vienna, AT)
- 11.00 Pragmatic trials
Lars Hemkens (Basel, CH)
- 11.30 Artificial intelligence methodology
Arman Eshaghi (London, UK)
- 12.00 Discussion
- 12.30 - 14.00** **Lunch Break**

- 14.00 - 15.30** **Session 5: Beyond clinical trials**
Chairs: Jaume Sastre - Garriga (Barcelona, ES),
Marcello Moccia (Naples, IT)
- 14.00 Synthetic data and federated learning
Alessio Signori (Genoa, IT)
- 14.30 Handling safety data in clinical trial
Elena Hernandez Martínez de Lapiscina (Amsterdam, NL)
- 15.00 Discussion
- 15.30 - 16.00** **Coffee Break**
- 16.00 - 18.00** **Practical Sessions 2 & 3**
- 16.00 Practical Session 2 - Introduction to JAMOVI
Francesca Bovis (Genoa, IT)
- 17.00 Practical Session 3 - Statistics with R and ChatGPT
Marta Ponzano (Genoa, IT), Alessio Signori (Genoa, IT)
- 18.00** **End of Day 2**
- 19.00** **Summer School Dinner**

WEDNESDAY, 10 JUNE 2026

08.30 - 10.30 Practical Sessions 4 & 5

08.30 Practical Session 4 - How to write the statistical section of a paper
Carmen Tur (Barcelona, ES)

09.30 Practical Session 5 - Calculation of CDW and PIRA
by a unified tool
Francesca Bovis (Genoa, IT), Noemi Montobbio (Genoa, IT)

10.30 - 11.00 Coffee Break

11.00 - 12.30 Hands - on Sessions 1 & 2

Chairs: Maria Pia Sormani (Genoa, IT), Olga Ciccarelli (London, UK)

Session 1: T-test, regression, logistic regression (with Jamovi)
Francesca Bovis (Genoa, IT), Alessio Signori (Genoa, IT)

Session 2: Cox with time dependent covariate,
mixed models (with R)
Marta Ponzano (Genoa, IT), Noemi Montobbio (Genoa, IT)

12.30 - 13.30 Closing session

Chairs: Bruno Stankoff (Paris, FR), Olga Ciccarelli (London, UK)

12.30 Future of statistics in MS Research
Maria Pia Sormani (Genoa, IT)

13.00 Discussion & Wrap-up
*Maria Pia Sormani (Genoa, IT), Marcello Moccia (Naples, IT),
Jaume Sastre - Garriga (Barcelona, ES)*

13.30 Lunch and individual departure