

PROGRAMME

DAY 1 (Tuesday, 16 March 2026) – Roma, Italy	
10:00 – 10:30	Introduction & Welcome (lecture) [MC] <i>Course, Faculty & software</i>
10:30 – 11:00	Definitions, Terminology & Publishing Research (lecture) [MC] <i>Statistics, parametric, non-parametric, randomization, independence, degrees of freedom, P-value, Editors, Reviewers & Journals.</i>
10:45 – 11:00	Coffee break
11:00 – 11:45	Data & Distributions, Descriptive Statistics – Samples (lecture) [SS] <i>Types of data, Gaussian distribution, parametric, non-parametric, Chi-square, F, Mean, SOS/DOF, variance, SD, Table 1 in RCT</i>
11:45 – 12:30	Inferential Statistics – Populations (lecture) [AK] <i>SE, 95%CI, P value, type I & II errors, differences, effect sizes</i>
12:30 – 13:15	Lunch
13:15 – 14:00	Sample Size & Power Calculations – (lecture) [MC] <i>Minimum difference or effect size, factors, post-hoc calculations, multiple comparisons</i>
14:00 – 14:45	Practical sample size calculations (exercise) [MC] <i>Empirical sample size calculations</i>

	14:45 – 15:00	Coffee break
15:00 – 15:45		Normality & Transforms (exercise) [AK] <i>Assumptions, log transforms.</i>
15:45 – 16:30		Data Presentation & Plotting (exercise) [SS] Precision, SD/SE/95%CI difference, Types of plots
16:30 – 17:00		Round-Up Day #1

PROGRAMME

DAY 2 (Wednesday, 17 March 2026) – Roma, Italy		
9:00 – 9:45		Student <i>t</i>-tests, Wilcoxon & Mann-Whitney <i>U</i>-tests (lecture) [SS] <i>Unpaired & paired, variance assumptions</i>
9:45 – 10:30		Proportions – Chi-square & Fisher Exact tests (lecture) [AK] <i>Absolute Risk (NNT), Relative Risk, Odds Ratio</i>
	10:30 – 10:45	Coffee break
10:45 – 11:15		Two-group analyses (exercise) [SS] <i>Continuous data & proportions</i>
11:15 – 12:00		Three or more group analyses: ANOVA (lecture) [MC] <i>ANOVA, RMANOVA, Kruskal-Wallis, Friedman, Chi-square, Expanded Fisher Exact</i>
12:00 – 12:45		Correlation & Linear Regression (lecture) [MC]

Masterclass in Statistics & Research Methodology

16–18 March 2027 – Roma, Italy

	Assumptions & differences, least squares, residuals, 95%CI, 95% prediction intervals
12:45 – 13:30	Lunch
13:30 – 14:30	Three or more group analyses, correlation & regression (exercise) [MC] <i>One-way ANOVA, post-tests with trend, chi-square trend</i>
14:30 – 15:15	Time to Event – Survival analysis (lecture) [AK] <i>Kaplan-Meier Analysis, right & left censored data, median survival, logrank tests</i>
15:15 – 15:30	Coffee break
15:30 – 16:15	Time to Event – Survival analysis (exercise) [AK] <i>Survival & hazard functions, Cox proportional hazards</i>
16:15 – 16:45	Diagnostic tests – (lecture) [SS] <i>Sensitivity, Specificity, PPV, NPV, LR, ROC</i>
16:45 – 17:00	Round-Up Day #2

PROGRAMME

DAY 3 (Thursday, 18 March 2026) – Roma, Italy

09:00 – 09:45

Systematic Review & Meta-Analysis (lecture) [AK]

09:45 – 10:30

How to get my article published. Reporting guidelines. [SS]

10:30 – 10:45

Coffee break

10:45 – 11:30

Confounding & Interaction Exercise [SS]

11:30 – 12:30

Logistic Regression (lecture) [AK])

12:30 – 13:15

Misuses of Statistics (lecture) [MC]

13:15 – 13:30

Errors in Presentation (exercise) [MC]

Group exercises with examples to correct

13:30

End of Course

Chair: Dr Malachy Columb [MC], University Hospital of South Manchester, Wythenshawe, UK

Malachy Columb is Consultant in Anaesthesia and Intensive Medicine at the University Hospital of South Manchester, Wythenshawe, UK, since 1996. He graduated from University College Dublin, Ireland (1985), trained in Anaesthesia in Leeds, West Yorkshire, UK, and was a faculty member at the Department of Anesthesiology, University of Michigan, Ann Arbor, USA (1994–5). His research interests include the clinical pharmacodynamics of local anaesthetic agents where he developed the minimum local analgesic concentration (MLAC) model which has been replicated world-wide. He is Research Methodology & Statistical Editor at the *European Journal of Anaesthesiology* and the *International Journal of Obstetric Anesthesia*, and previously for the *British Journal of Anaesthesia*. He is Chairman of the *Research Methodology and Statistics Masterclass* of the ESAIC. With the ESAIC Clinical Trials Unit, he is on the steering committees and is the research methods and statistical advisor for the MOPED, ENCORE and EuPreCHO projects. He has published over 165 scientific articles including, 105 original research articles, 60 review articles and 225 abstracts. His research has gained 27 national and international prizes. (Web of Science: H-index 40, Google Scholar: H-index 56.)

Speaker: Dr Sergi Sabate [SS]

Sergi Sabate graduated (MD) from Universitat Autònoma de Barcelona (UAB), Spain in 1992. He trained as an anaesthetist in Hospital de la Santa Creu i Sant Pau of Barcelona. He obtained a Master in 'Design and Statistics in Health Sciences' from Universitat Autònoma de Barcelona in 2003. He holds a physician degree (PhD) from Universitat de Barcelona (UB) in 2008 with the thesis: 'Anaesthesia practice in Catalonia: Results of the analysis of 23,136 anaesthetic procedures performed in 2003'. He is currently working in Hospital de la Santa Creu i Sant Pau of Barcelona. His main focus of interest is on perioperative complications and risk factors.

In ESAIC, he has been involved in the PERISCOPE* study as a steering committee member and statistician.

**Observational study, to validate a score predicting postoperative pulmonary Complications.*

Speaker: Dr Angy Karakosta [AK], University Hospital of Ioannina, Greece

Angy Karakosta is an Assistant Professor of Anaesthesiology at the University Hospital of Ioannina, Greece since 2020. She graduated from the Aristotle University of Thessaloniki, School of Medicine, Greece in 2002. She trained in Anaesthesia and in Critical Care Medicine at Thriassio General Hospital, Athens, Greece. She worked as a consultant in Anaesthesiology at the University General Hospital Attikon, Athens, Greece (2013–14 and 2018–2020). She obtained a Master's degree in Biostatistics from the National & Kapodistrian University of Athens (Dept. of Hygiene and Epidemiology, and Dept. of Mathematics) in 2008. Her research interests include risk factor analysis and intraoperative haemodynamics.

Conflicts of interest:

Malachy Columb: Research Methods & Statistical Editor at the *European Journal of Anaesthesiology* and the *International Journal of Obstetric Anesthesia*.

Sergi Sabate: None

Angy Karakosta: None