

Masterclass in Statistics & Research Methodology

24-26 March 2026 – Istanbul, Turkey

PROGRAM

DAY 1 (Tuesday, 24 MAR2026) – Istanbul, Turkey	
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	<i>Coffee break</i>
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	<i>Lunch</i>
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	<i>Coffee break</i>
15:00 – 15:45	Normality & Transforms (exercise) [AK] <i>Assumptions, log transforms.</i>
15:45 – 16:30	Data Presentation & Plotting (exercise) [SS] <i>Precision, SD/SE/95%CI difference, Types of plots</i>
16:30 – 17:00	Round-Up Day #1

PROGRAM

DAY 2 (Wednesday 25MAR2026) – Istanbul, Turkey

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	<i>Coffee break</i>
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] <i>Assumptions & differences, least squares, residuals, 95%CI, 95% prediction intervals</i>
12:45 – 13:30	<i>Lunch</i>
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	<i>Coffee break</i>
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

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DAY 3 (Thursday, 26 MAR2026) – Istanbul, Turkey

09:00 – 09:45	Systematic Review & Meta-Analysis (lecture) [AK]
09:45 – 10:30	How to get my article published _Reporting guidelines (lecture) [SS]
10:30 – 10:45	Coffee break
10:45 – 11:30	Confounding & Interaction Exercise [SS]
11:30 – 12:30	Agreement Analyses (lecture) [AK] <i>Kappa (weighted), Intraclass correlation, Bland-Altman plots</i>
12:30 – 13:15	Misuses of Statistics (lecture) [MC]
13:15 – 13:30	Errors in Presentation (exercise) [MC] <i>Group exercises with examples to correct</i>
13:30	End of Course

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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*. With ESAIC, he is on the steering committee and is the statistical advisor for the MOPED study in diabetic patients undergoing surgery. He has published over 150 scientific articles including, 97 original research articles, 58 review articles and 210 abstracts. His research has gained 25 national and international prizes.

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, as anesthesiology department chairman. 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: Statistical & Research Methods & Statistical Editor at the *European Journal of Anaesthesiology* and the *International Journal of Obstetric Anesthesia*.

Sergi Sabate: None

Angy Karakosta: None