

2nd BAYESIAN STATISTICAL ANALYSES

FOR THE HUMAN, SOCIAL
AND COGNITIVE SCIENCES



BASIC
NPSY



The Summer School is designed for Ph.D. students, post-doctoral research fellows and early career scholars from a variety of disciplines and approaches within the human, social and cognitive sciences.

Joining the Summer School, participants will have the possibility to present an original contribution within a poster session format (preferably somehow Bayesian-related), which will be evaluated for the best poster prize! This is not mandatory but can be a great opportunity for all the students.

In order to ease the teacher-students contact, only a maximum of 25 participants will be admitted.

**The Summer School will be held from Monday May 31st to Saturday June 5th, 2021,
University of Verona, Italy**

Lecturers:

- ✘ *Mel Slater (University of Barcelona – Spain)*
- ✘ *Rosalyn Moran (King’s College London – UK)*
- ✘ *Richard Morey (Cardiff University – UK)*
- ✘ *Fabio Spizzichino (University “La Sapienza” of Rome – Italy)*
- ✘ *Massimiliano Badino (University of Verona – Italy)*
- ✘ *Marco Tullio Liuzza (“Magna Graecia” University of Catanzaro – Italy)*
- ✘ *Daniele Romano (University of Milano-Bicocca – Italy)*
- ✘ *Michele Scandola (University of Verona – Italy)*

Summer school directors: Valentina Moro & Michele Scandola

Deadline for applications March 15, 2021.

Each application must be in English and should include

1. a short CV – max two pages;
2. a motivation letter (max 500 words);
3. fill this questionnaire (<http://survey.univr.it/index.php/864847>)
4. – optional but recommended – an abstract (max 350 words) concerning the poster you intend to present at the summer school (check the website for the template).

Applications should be sent at *bayeshsc@ateneo.univr.it*

Participants will be selected based on participants' CV, motivation letter, poster abstract, research interests, and balance within the group regarding gender and geographical origin, with a preference for profiles with MATLAB and R experience. Incomplete applications and applications presented in languages other than English will not be considered.

PLEASE CLEARLY STATE YOUR INSTITUTION, ITS ADDRESS, COUNTRY AND OFFICIAL EMAIL IN YOUR CV.

Notification of decisions will be sent to applicants via email the April 15, 2021.

Participation fees:

- ✕ Students and Ph.D. students: 200 €
- ✕ Post-docs and researchers: 300 €

The Fee includes the costs for the entire summer school and coffee breaks.

If the pandemic situation will force us to change the summer school in an online version, the fees will be 100 € and 200 €, respectively.

The city of Verona offers several options for accommodation and beautiful places to visit.

Day 1 (Monday) 31 May

Time	Topic	Teacher(s)
8:30 – 9:30	Registration	
9:30 – 9:45	Welcome greetings	Valentina Moro
9:45 – 10:45	The probabilistic mechanism of updating information: an introduction	Fabio Spizzichino
10:45 – 11:00	Coffee break	
11:00 – 12:30	Bayes Your Way Out of the Rationality Conundrum	Massimiliano Badino
12:30 – 14:00	Lunch break	
14:00 – 15:00	Conditional independence and sufficient partitions	Fabio Spizzichino
15:00 – 16:00	Markov Chain Monte Carlo	Michele Scandola
16:00 – 16:30	Coffee break	
16:30 – 18:00	Bayesian statistics for Virtual Reality studies in psychology and cognitive neuroscience	Mel Slater

Day 2 (Tuesday) 1 June

Time	Topic	Teacher(s)
9:00 – 11:00	Basic Bayesian ideas and model comparison	Richard Morey
11:00 – 11:20	Coffee break	
11:20 – 13:00	Bayesian analysis using <i>BayesFactor</i>	Richard Morey
13:00 – 14:30	Lunch break + Poster Session	
14:30 – 15:30	Practical <i>BayesFactor</i> in your analysis pipeline	Richard Morey
15:30 – 15:45	Coffee break	
15:45 – 18:00	Hands-on workshop	Richard Morey

Day 3 (Wednesday) 2 June

Time	Topic	Teacher(s)
9:00 – 10:00	A user-friendly software to start with Bayesian Analysis. The basics of JASP	Daniele Romano
10:00 – 11:00	The <i>brms</i> package and (generalized) linear multilevel models	Michele Scandola Marco Tullio Liuzza
11:00 – 11:20	Coffee break	
11:20 – 13:00	Bayesian approaches to psychometrics using <i>brms</i>	Marco Tullio Liuzza
13:00 – 14:30	Lunch break	
14:30 – 15:15	Bayesian approaches to psychometrics using <i>brms</i>	Marco Tullio Liuzza
15:15 – 15:30	Coffee break	
15:30 – 18:00	Hands-on Workshop	Marco Tullio Liuzza Daniele Romano Michele Scandola

Day 4 (Thursday) 3 June

Time	Topic	Teacher(s)
9:00 – 11:00	Empirical Bayes	TBD
11:00 – 11:20	Coffee break	
11:20 – 13:00	Writing your own Bayesian Model: JAGS and STAN (first part)	Michele Scandola
13:00 - 14:00	Lunch break	
14:00 – 15:00	Writing your own Bayesian Model: JAGS and STAN (second part)	Michele Scandola
15:00 – 15:30	Coffee break	
15:30 – 17:00	Hands-on workshop	Michele Scandola Marco Tullio Liuzza Daniele Romano
17:00 – 18:00	The <i>bmscstan</i> package: Bayesian Multilevel Single Case analysis	Daniele Romano Michele Scandola

Day 5 (Friday) 4 June

Time	Topic	Teacher(s)
9:00 – 10:30	Bayesian updating in the brain: analytical approaches in behavioural designs and applications to computational psychiatry	Rosalyn Moran
10:30 – 10:40	Coffee break	
10:40 – 11:30	An introduction to Model fitting in Nonlinear Settings	Rosalyn Moran
11:30 – 13:00	Predictive Codes in the Brain & Emergence from Variational Bayes	Rosalyn Moran
13:00 – 14:30	Lunch break	
14:30 – 15:30	Dynamic Causal Modelling: an introduction (first part)	Rosalyn Moran
15:00 – 15:30	Coffee break	
15:30 – 18:00	Dynamic Causal Modelling for EEG (second part)	Rosalyn Moran

Day 6 (Saturday) 5 June

Time	Topic	Teacher(s)
<i>9:00 – 10:30</i>	Group Studies using Bayesian Statistics	Prof. Rosalyn Moran
<i>10:30 – 10:40</i>	Coffee break	
<i>10:40 – 11:30</i>	DCM Practical I	Prof. Rosalyn Moran
<i>11:30 – 13:00</i>	DCM Practical II	Prof. Rosalyn Moran