HARMONY

Novel tools for test evaluation and disease prevalence estimation

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cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY

COST ACTION CA18208

Introduction to Bayesian Latent Class Models for diagnostic test evaluation

Uppsala, Sweden: 8th-10th June, 2022

Arianna Comin & Matt Denwood

The first 20 participants will receive an official invitation from e-COST.

Financial support is provided according to COST rules*

This training workshop will cover the application of Bayesian latent class models to multi-test, multi-population datasets with a focus on veterinary applications, including the following core topics:

1. Running basic models in JAGS
2. Introduction to Hui-Walter models
3. Multi-population Hui-Walter models
4. Multi-test, multi-population models
5. How to interpret the latent class
6. Validation of model assumptions

Each topic will combine didactic teaching of new concepts, hands-on practical sessions with assistance from demonstrators, and open-format discussion of lessons to take away from the session. A dedicated session for hands-on assistance with participants' own data will be held on the final morning of the workshop. Pre-course preparation work will also be provided as a pre-requisite for attending the course. Prior experience of Bayesian statistics or latent class methods is not expected, but basic statistical knowledge and R programming skills are expected (these will be reinforced using the pre-course preparation work). The primary learning objective is that participants understand how to implement these methods on their own data, both in terms of the practice of MCMC and how to interpret the results.

Workshop organisers / trainers:

- Arianna Comin (Swedish National Veterinary Institute) (arianna.comin@sva.se)
- Matt Denwood (University of Copenhagen) (md@sund.ku.dk)

Number of participants: 20. Register at: https://forms.gle/2eBzFg4GFdHb1Cjq8

Last day to register: Sunday 1 May 2022.

SVA NATIONAL VETERINARY INSTITUTE

UNIVERSITY OF COPENHAGEN

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*All physically attending participants are eligible for the reimbursement of incurred accommodation, meals, and local travel expenses in the country where the meeting takes place is paid as one item known as daily allowance. During the training school all participants have to sign the attendance list for each day to be considered eligible for reimbursement. The daily allowance considers the participant's travel start and end dates and hours. The daily allowance rate is determined based on the country where the event takes place [**Sweden 199 EUR/day**]. No invoices for accommodation, meals, and local transport in the country where the meeting takes place are required. In the cases when the travel dates to and from the event cannot be determined, the participant shall provide any documentation attesting their travel dates so that the daily allowance can be correctly reimbursed. For those participants whose primary affiliation is in the country where the meeting takes place, if they travel less than 100 km (one way) in the country where the meeting takes place, are invited to claim only the part of the daily allowance intended to cover the short-distance transport expenses. More information on transport expenses (car travel, airplane/train/bus/ferry travel) can be found in Appendix 1 – Section 3.1. COST Annotated rules document.

The event will take place at

Swedish National Veterinary Institute (SVA) - Room Långskeppet

Ulls väg 2D

756 51 Uppsala

How to get there

Uppsala can be easily reached by train (www.sj.se) from any city, including Stockholm Arlanda airport. From Uppsala train station, take bus number 4 towards Gottsunda and get off at "SVA" bus stop. The bus ride takes approximately 20 min. More info on bus schedules and tickets are available at www.ul.se.

Suggested accommodation

The best option is to stay nearby the train station, that is close to the city centre and has good accessibility to public transport: https://goo.gl/maps/W3ExZynoYYc26WAX6

Date	Start	End	Speaker(s)	Title
Wednesday 8th June 2022			Day 1: Room Långskeppet	
	13:00	13:30	Didactic teaching	Topic 1: Running basic models in JAGS (plus summary of pre-course work and introduction to the course topics)
	13:30	14:30	Practical session and discussion	
	14:30	15:00	Coffee break	
	15:00	15:30	Didactic teaching	Topic 2: Introduction to Hui-Walter models (the influence of data quantity and priors)
	15:30	16:30	Practical session and discussion	

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			Day 2: Room Långskeppet	
Thursday 9th June 2022	8:30	9:00	Didactic teaching	Topic 3: Multi-population Hui-Walter models (how and why to select different populations)
	9:00	10:00	Practical session and discussion	
	10:00	10:30	Coffee break	
	10:30	11:00	Didactic teaching	Topic 4: Multi-test, multi-population models (correlation between tests)
	11:00	12:00	Practical session and discussion	
	12:00	13:00	Lunch break	
	13:00	13:30	Didactic Teaching	Topic 5: How to interpret the latent class (a practical exploration of test correlations)
	13:30	14:30	Practical session and discussion	
	14:30	15:00	Coffee break	
	15:00	15:30	Didactic Teaching	Topic 6: Validation of model assumptions (constant Se/Sp over multiple populations, excluding populations to ensure robustness)
	15:30	16:30	Practical session and discussion	

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Friday 10th June 2022			Day 3: Room Långskeppet	
	8:30	9:00	Didactic Teaching	Bonus topic: adding covariates and random effects
	9:00	10:00	Practical session	
	10:00	10:30	Coffee break	
	10:30	11:30	Practical session and discussion	Hands-on assistance with participants' own data & general discussion
	11:30	12:00		

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