# Training workshop on diagnostic test evaluation

**June 28th – July 1st, 2021**

Where to Register: https://forms.gle/F839U9c1MTWAgH3d7

SOS: "First come, first served"

The first 25 participants will receive an official invitation from e-COST.

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

1. A practical introduction to fitting simple Bayesian models using MCMC
2. Basic Hui-Walter models
3. Multi-population Hui-Walter models
4. Multi-test, multi-population models
5. How to interpret the latent class
6. Coping with missing data
7. Incorporating imperfect sensitivity and specificity into more complex models

Each topic will combine didactic teaching of new concepts, hands-on practical sessions with online assistance from demonstrators, and open-format discussion of lessons to take away from the session. Pre-course preparation work will also be provided as a pre-requisite for attending the course week. 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. Use of participants' own data will be strongly encouraged, but substitute datasets will also be provided to fit each session.

Workshop organisers / trainers / assistants:

- Matt Denwood (University of Copenhagen) (md@sund.ku.dk)
- Søren Nielsen (University of Copenhagen)
- Nils Toft (IQinAbox)
- Maj Beldring Henningsen (University of Copenhagen)


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# HARMONY

Novel tools for test evaluation and disease prevalence estimation

Https://harmony-net.eu/

cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY

## COST ACTION CA18208

| Date | Start | End | Speaker(s) | Title |
|---|---|---|---|---|
| **Monday 28th June 2021** | | | Day 1: Online - Zoom | |
| | 9:00 | 9:30 | Didactic teaching | Topic 1: A practical introduction to MCMC (summary of pre-course work and introduciton to the rest of the week) |
| | 9:30 | 10:30 | Practical session and discussion | |
| | 10:30 | 11:00 | Coffee break | |
| | 11:00 | 11:30 | Didactic teaching | Topic 2: Basic Hui-Walter models (the influence of data quantity and priors) |
| | 11:30 | 12:30 | Practical session and discussion | |
| **Tuesday 29th June 2021** | | | Day 2: Online - Zoom | |
| | 9:00 | 9:30 | Didactic teaching | Topic 3: Multi-population Hui-Walter models (how and why to select different populations) |
| | 9:30 | 10:30 | Practical session and discussion | |
| | 10:30 | 11:00 | Coffee break | |
| | 11:00 | 11:30 | Didactic teaching | Topic 4: Multi-test, multi-population models (correlation between tests) |
| | 11:30 | 12:30 | Practical session and discussion | |

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| Date | Start | End | Speaker(s) | Title |
|---|---|---|---|---|
| **Wednesday 30th June 2021** | | | Day 3: Online - Zoom | |
| | 9:00 | 9:30 | Didactic teaching | Topic 5: How to interpret the latent class (a practical exploration of test correlations) |
| | 9:30 | 10:30 | Practical session and discussion | |
| | 10:30 | 11:00 | Coffee break | |
| | 11:00 | 11:30 | Didactic teaching | Topic 6: Coping with missing data |
| | 11:30 | 12:30 | Practical session and discussion | |
| **Thursday 1st July 2021** | | | Day 4: Online - Zoom | |
| | 9:00 | 9:30 | Didactic teaching | Topic 7: Incorporating imperfect sensitivity and specificity into more complex models (adapting generalised linear models) |
| | 9:30 | 10:30 | Practical session and discussion | |
| | 10:30 | 11:00 | Coffee break | |
| | 11:00 | 12:00 | Practical session | Working on participants' own data |
| | 12:00 | 12:30 | Group discussion | Wrap-up discussion |


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