



# HARMONY

Novel tools for test evaluation and disease prevalence estimation

<https://harmony-net.eu/>



## COST ACTION CA18208

### **Introduction to Bayesian Latent Class analysis for estimation of diagnostic test sensitivity and specificity of animal diseases**

**Location: Norwegian Veterinary Institute (NVI), Ås, Norway**

**Date: 14-15 September 2021**

#### About the training

This 2-day training will focus on the application of Bayesian Latent Class analysis Models (BLCMs) for field evaluation of diagnostic tests. Participants will learn about the theory of Bayes' theorem, probability distributions, prior distributions, and introduction to simulation and Markov-chain Monte Carlo methods for simulating priors and posteriors, and how they can be applied for estimation of diagnostic test sensitivity and specificity when tests are imperfect, and a reference test is not available. The training is interactive through discussion and practical examples among participants and with instructors. English will be the working language of this training. Participants should have basic knowledge and experience in writing computing programs in the statistical language R. Participants will need to bring their laptops.

By attending this training, participants will:

- Perceive the logic of latent class models and their applicability in diagnostic accuracy studies in veterinary medicine
- Get acquainted with BLCMs basic principles & challenges
- Perform hands-on training on Se/Sp estimation with BLCMs
- Understand the importance of standards for reporting of diagnostic accuracy studies that use BLCMs (STARD-BLCMs)

How to register: <https://forms.gle/3GpsFVa6ZPdzykCC8>

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



**Veterinærinstituttet**  
Norwegian Veterinary Institute

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### Other information:

Location: Norwegian Veterinary Institute, main office in Ås located in Elizabeth Stephansens vei 1, 1433 Ås, Norway (<https://goo.gl/maps/HeXxsUrK2NC6iEAM6>)

### Suggested accommodation:

- Thon Hotel Ski. It is the closest hotel, well situated by the train station in Ski and very easy to either drive or take the bus further to Ås.  
([https://www.thonhotels.no/hoteller/norge/ski/thon-hotel-ski/?utm\\_source=google&utm\\_medium=infoboks&utm\\_campaign=GMB](https://www.thonhotels.no/hoteller/norge/ski/thon-hotel-ski/?utm_source=google&utm_medium=infoboks&utm_campaign=GMB))..
- SiÅs guest accommodation in Ås (<https://www.sias.no/sias-guest-accommodation/category1187.html>)

### Financial support:

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 both days 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 [**Norway 193 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, the expense is reimbursed through the daily allowance rate and cannot be claimed separately. More information on transport expenses (car travel, airplane/train/bus/ferry travel) can be found in Sections 5, 6 of the [COST Vademecum](#).

For further details of the program, please contact Saraya Tavoranpanich ([saraya.tavoranpanich@vetinst.no](mailto:saraya.tavoranpanich@vetinst.no)) or Katharine Dean ([Katharine.Rose.Dean@vetinst.no](mailto:Katharine.Rose.Dean@vetinst.no)). For information about financial support, please contact Eleftherios Meletis ([emeletis@outlook.com](mailto:emeletis@outlook.com)).



Collaborating Centre  
for Epidemiology and Risk  
Assessment of Aquatic  
Animal Diseases (Europe)



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## COST ACTION CA18208

Date	Start	End	Speaker(s)	Title
Tuesday 14 September 2021			Room: Adamstuen 2	
	8:00	8:15	All	Welcome and introduction
	8:15	9:15	Haakon Bakka (NVI)	Bayesian theory and basic underlying principles of Bayesian statistics and MCMC methods
	9:15	10:15	Saraya Tavornpanich (NVI)	Application of Bayesian methods to diagnostic of aquatic animal diseases
	10:15	10:45	Coffee break	
	10:45	11:15	Ingrid Toftaker (NMBU)	Application of Bayesian methods to diagnostic of terrestrial animal diseases
	11:15	11:45	Jörn Klein (USN)	Application of Bayesian methods to COVID-19
	11:45	12:45	Lunch Break	
	12:45	13:30	Katharine Dean (NVI)	Importing data and using JAGS in R (Hands-on training)
	13:30	14:00	Katharine Dean (NVI)	One test - one population (Hands-on training)
	14:00	14:30	Katharine Dean (NVI)	Model diagnostics (Hands-on training)
	14:30	15:00	Coffee break	
	15:00	15:30	Katharine Dean (NVI)	Changing priors (Hands-on training)
	15:30	16:00	All	Day 1 Wrap-up



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EUROPEAN COOPERATION  
IN SCIENCE & TECHNOLOGY

## COST ACTION CA18208

Date	Start	End	Speaker(s)	Title
Wednesday 15 September 2021			Room: Adamstuen 2	
	8:00	8:30	All	Introduction for Day 2
	8:30	9:30	Ingrid Toftaker (NMBU)	Study planning: purpose, sample size calculation, selection of priors, degrees of freedom
	9:30	10:15	Katharine Dean (NVI)	Multiple tests – one population (Hands-on training)
	10:15	10:45	Coffee break	
	10:45	11:15	Katharine Dean (NVI)	Multiple tests – multiple populations (Hands-on training)
	11:15	11:45	Katharine Dean (NVI)	Conditional dependence between tests (Hands-on training)
	11:45	12:45	Lunch Break	
	12:45	13:15	Polychronis Kostoulas (UTH)	STARD-BLCM: Reporting guidelines
	13:15	14:00	Saraya Tavoranpanich (NVI)	Example of pancreas disease infection in Atlantic salmon: Part 1 - Model building
	14:00	14:30	Saraya Tavoranpanich (NVI)	Part 2 - Interpreting results
	14:30	15:00	Coffee break	
	15:00	15:30	Saraya Tavoranpanich (NVI)	Part 3 - Exporting graphs for publication
	15:30	16:00	All	Day 2 Wrap-up



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