INLABRU **WORKSHOP**

ICES 2025, Copenhagen

Jafet Belmont, Sara Martino and Janine Illian

1 Welcome to the course!

- Welcome to the `inlabru` workshop!
- The goal for the workshop is to introduce Bayesian statistics implemented using the `inlabru` package.
- The workshop is intended for … No knowledge of `R-INLA` is required.
- Workshop materials in the github repository inlabru-workshop

2 Learning Objectives for the workshop

At the end of the workshop, participants will be able to:

- TEST
- ILO2
- ILO3

Intended audience and level: The tutorial is intended for … No knowledge of `R-INLA` is required.

3 Schedule Program

3.0.1 Day 1

Time	Topic
10:00 - 10:30	ICES informative session
10:30 - 11:30	**Session 1**: Introduction to `inlabru`
11:30 - 13:00	Practical Session 1
13:00 - 14:30	Lunch break 🍴
14:30 - 15:30	**Session 2**: Latent Gaussian Models and INLA
15:30 - 15:45	Coffee Break ☕
15:45 - 16:45	Practical Session 2
16:45 - 17:00	wrap-up and outlook

3.0.2 Day 2

Time	Topic
9:00 - 10:00	**Session 3**: Temporal modelling and smoothing part 1
10:00 - 10:30	Snack 🍩
10:30 - 11:30	**Session 4**: Temporal modelling and smoothing part 2
11:30 - 13:00	Practical Session 3
13:00 - 14:30	Lunch break 🍴
14:30 - 15:30	**Session 5**: Introduction to Spatial Statistics

Time	Topic
15:35 - 15:45	Coffee Break
15:45 - 16:45	Practical Session 4
16:45 - 17:00	wrap-up and outlook

3.0.3 Day 3

Time	Topic
9:00 - 10:00	**Session 6**: Areal Processes
10:00 - 10:30	Snack
10:30 - 11:30	**Session 7**: Geostatistics
11:30 - 13:00	Practical Session 5
13:00 - 14:30	Lunch break
14:30 - 15:30	**Session 8**: Spatial Point processes
15:35 - 15:45	Coffee Break
15:45 - 16:45	Practical Session 5 continued
16:45 - 17:00	wrap-up and outlook

3.0.4 Day 4

Time	Topic
9:00 - 10:00	**Session 9**: Spatiotemporal models
10:00 - 10:30	Snack
10:30 - 11:30	**Session 10**: Model comparison and evaluation
11:30 - 13:00	Practical Session 6
13:00 - 14:30	Lunch break
14:30 - 15:30	**Session 11**: Multilikelihoods/joint likelihood
15:35 - 15:45	Coffee Break
15:45 - 16:45	Practical Session 7
16:45 - 17:00	wrap-up and outlook

3.0.5 Day 5

Time	Topic
9:00 - 10:00	**Session 12**: Zero inflated models
10:00 - 10:30	Snack
10:30 - 11:30	**Session 13**: Complex observational processes: Distance Sampling
11:30 - 13:00	Practical Session 8
13:00 - 13:15	Coffee Break
13:15 - 14:00	Closing session

4 In preparation for the workshop

Participants are required to follow the next steps before the day of the workshop:

1. Install R-INLA

2. Install `inlabru` (available from CRAN)

```
# Enable universe(s) by inlabru-org
options(repos = c(
  inlabruorg = "https://inlabru-org.r-universe.dev",
  INLA = "https://inla.r-inla-download.org/R/testing",
  CRAN = "https://cloud.r-project.org"
))

# Install some packages
install.packages("inlabru")
```

3. Make sure you have the latest `R-INLA`, `inlabru` and `R` versions installed.
4. Install the following libraries:

```
install.packages(c(
  "CARBayesdata",
  "DAAG",
  "dplyr",
  "FSAdata",
  "ggplot2",
  "gstat",
  "gt",
  "lubridate",
  "magrittr",
  "mapview",
  "patchwork",
  "scico",
  "sdmTMB",
  "sf",
  "spatstat",
  "spdep",
  "terra",
  "tidyr",
  "tidyterra",
  "tidyverse",
  "variosig"
))
```