SOFTWARE INSTALLATION

Please use the instructions below to install and check your installation.

Since 29 April 2025, the latest INLA package is built for R 4.5, so if you're able to upgrade your R installation, please do so to avoid unnecessary issues. The package will in many cases also work with older R versions, but compatibility is sometimes difficult.

0   Installing `INLA` and `inlabru`

Due to the work involved in building the binaries for the INLA package C software for different architectures, the INLA package is not on CRAN, but it can be installed from its own distribution repository.

1. Check your `R` version.

2. Install R-INLA, instructions can be found here

3. 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",
  "dplyr",
  "fmesher",
  "ggplot2",
  "lubridate",
  "mapview",
  "patchwork",
  "scico",
  "sdmTMB",
  "sf",
  "spatstat",
  "spdep",
  "terra",
  "tidyr",
  "tidyterra",
  "viridis"
))
```

0 Installation check

Please check your installation using the basic model runs below.

If you run into issues, you can post a question with information about what you tried and what didn't work, on the course github discussion page.

You can check that `INLA` is correctly installed by running

```r
df <- data.frame(y = rnorm(100) + 10)
fit <- INLA::inla(
  y ~ 1,
  data = df
)
summary(fit)
```

```
Time used:
    Pre = 0.415, Running = 0.234, Post = 0.0442, Total = 0.693
Fixed effects:
            mean    sd 0.025quant 0.5quant 0.975quant  mode kld
(Intercept) 9.982 0.088      9.809    9.982     10.154 9.982   0

Model hyperparameters:
                                         mean    sd 0.025quant 0.5quant
Precision for the Gaussian observations 1.32 0.186      0.982     1.31
                                        0.975quant mode
Precision for the Gaussian observations       1.71 1.29

Marginal log-Likelihood:  -140.69
 is computed
Posterior summaries for the linear predictor and the fitted values are computed
(Posterior marginals needs also 'control.compute=list(return.marginals.predictor=TRUE)')
```

If the simple `inla()` call fails with a crash, you may need to install different `inla` binaries for your hardware/software combination, with `INLA::inla.binary.install()`.

When `inla()` works, you can check that `inlabru` is installed correctly by running the same model in `inlabru`:

```r
fit <- inlabru::bru(
  y ~ Intercept(1, prec.linear = exp(-7)),
  data = df
)
summary(fit)
```

```
inlabru version: 2.13.0.9016
INLA version: 25.08.21-1
Components:
Latent components:
Intercept: main = linear(1)
Observation models:
  Family: 'gaussian'
    Tag: <No tag>
```

```
    Data class: 'data.frame'
    Response class: 'numeric'
    Predictor: y ~ .
    Additive/Linear: TRUE/TRUE
    Used components: effects[Intercept], latent[]
Time used:
    Pre = 0.31, Running = 0.268, Post = 0.0613, Total = 0.64
Fixed effects:
          mean    sd 0.025quant 0.5quant 0.975quant  mode kld
Intercept 9.981 0.088      9.809    9.981     10.154 9.981   0


Model hyperparameters:
                                        mean    sd 0.025quant 0.5quant
Precision for the Gaussian observations 1.32 0.186      0.982     1.31
                                        0.975quant mode
Precision for the Gaussian observations       1.71 1.29


Marginal log-Likelihood:  -145.16
 is computed
Posterior summaries for the linear predictor and the fitted values are computed
(Posterior marginals needs also 'control.compute=list(return.marginals.predictor=TRUE)')
```