SOFTWARE INSTALLATION

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

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 and we will try reply.

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.

1 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(
  "dplyr",
  "ggplot2",
  "patchwork",
  "scico"
))
```

2 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

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

```
Time used:
    Pre = 1.04, Running = 0.195, Post = 0.00976, Total = 1.25
Fixed effects:
             mean    sd 0.025quant 0.5quant 0.975quant  mode kld
(Intercept) 9.983 0.104      9.778    9.983     10.188 9.983   0

Model hyperparameters:
                                          mean    sd 0.025quant 0.5quant
Precision for the Gaussian observations 0.934 0.131      0.695    0.928
                                        0.975quant  mode
Precision for the Gaussian observations       1.21 0.916

Marginal log-Likelihood:  -158.15
 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`:

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

```
inlabru version: 2.13.0.9016
INLA version: 25.11.12-1
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 = 1.71, Running = 0.192, Post = 0.0128, Total = 1.92
Fixed effects:
           mean    sd 0.025quant 0.5quant 0.975quant  mode kld
Intercept 9.983 0.104      9.778    9.983     10.188 9.983   0

Model hyperparameters:
                                          mean    sd 0.025quant 0.5quant
Precision for the Gaussian observations 0.934 0.131      0.695    0.928
                                        0.975quant  mode
Precision for the Gaussian observations       1.21 0.916

Marginal log-Likelihood:  -162.62
 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)')
```