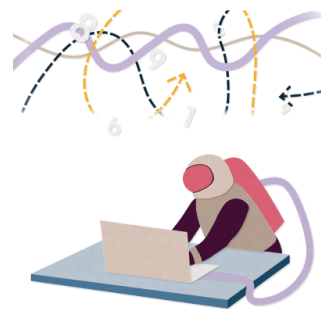


## Advanced Machine Learning with Tidymodels

A course that builds on the material covered in our [Machine Learning with Tidymodels](#) course. We take a look at how we can fit linear discriminant analysis (LDA) models using `{discrim}`, assessing model reliability using V-fold cross validation, pre-processing, tree-based models & more. If you wish to explore the abundance of model fitting techniques `{tidymodels}` has to offer, then this course is certainly for you!



### Course Outline

- **Qualitative modelling:** An introduction to Linear Discriminant Analysis (LDA).
- **Fitting LDA models & model prediction:** Using `{discrim}` to add additional bindings to `{parsnip}`, to fit LDA models
- **Advanced model assessment:** V-fold cross validation using `{workflows}` and `{tune}`
- **Penalised regression techniques:** Ridge regression, lasso and elastic net
- **Tree-Based Models:** Bagging, random forests and boosting

### Learning Outcomes

#### Session 1:

*By the end of session 1, participants will be able to...*

- understand and fit linear discriminant analysis models in the Tidymodels style using `{discrim}` and `{parsnip}`.
- use `{yardstick}` to assess models and gain an understanding of model metrics.
- understand V-fold cross validation and bootstrapping and how to use it on your training data.
- tune model hyperparameters in an intelligent fashion using the `{tune}` and `{dials}` packages.

#### Session 2:

*By the end of session 2, participants will be able to...*

- understand, create and tune penalised regression models and explore multiple metrics such as Ridge, Lasso and Elastic Net regression.
- understand variable importance and know how to use `{vip}` to assess variables.
- understand the concept of tree-based models and their uses in regression and classification.
- refine the performance of tree-based models by exploring ensembles: bagging, the `{baguette}` package, and random forest strategies.
- fit, tune and assess the predictive performance of tree-based models.

*This course does not include:*

- Other clustering alternatives to the K-nearest neighbours method.
- Dimensionality reduction methods except for linear discriminant analysis.
- Bayesian networks, neural networks and genetic algorithms.

- Computer Vision and Image recognition analysis.
- Boosting ensembles for tree-based models.

### Attendee Feedback

- “Very well taught. I will certainly be recommending this course to my colleagues!”