

Facilitated Advanced e-Course on Machine Learning and Text Mining for Trade Policy Analysis with R

17-28 Apr 2023 (virtual)

Course Description

This online course is designed to introduce participants to the basic techniques involved in machine learning and text mining, with applications focusing on international trade policy.

The course will emphasize developing an intuitive understanding of the tools involved, so that participants can identify future applications in their own work. It is a hands-on course, with participants expected to spend considerable time analyzing real-world data and replicating the modelling extensively described in the video lectures.

[This training was originally conducted by Ben Shepherd live in spring of 2021.](#) The materials of that live course are now adapted to suit offline self-paced mode of learning.

This facilitated e-course (17-28 April 2023) will include online interaction via slack, as well as a live Q&A session on 28 April 2023 with Ben Shepherd.

Requirements

Prior familiarity with **R** is strongly desirable for the successful completion of the course. To get familiar with the basics of using R for trade policy analysis it is recommended to complete ESCAP Online Training on Using R for Trade Analysis.

Participants must have some background in econometrics and statistics, typically to graduate level. This will facilitate grasping the concepts discussed in this course and make entering the field of Machine Learning easier.

Please apply by 13 April 2023 to this course.

Acknowledgements and additional notes

All instructional materials of the course were developed by Ben Shepherd for the live training conducted in 2021. Ben Shepherd, the Principal of Developing Trade Consultants, is a trade economist and international development consultant. He has worked on a wide range of trade and development issues with organizations such as the World Bank, the OECD, the Asian Development Bank, the Inter-American Development Bank, the United Nations, and the Asia-Pacific Economic Cooperation. He specializes in providing policy-relevant research, as well as capacity-building seminars for researchers working in trade and development. He has published more than fifteen articles in peer-reviewed journals, and a similar number of book chapters.

The self-paced version of the course was compiled and quizzes were developed by Maria Semenova, Consultant of TIID, ESCAP. Code scripts were reviewed and updated appropriately by Maria Semenova and Malte Mowlavi.

Structure of the course

This course consists of three modules.

Module 1. Introduction to Machine Learning

- What is machine learning
- Machine learning and econometrics

- The Lasso and other approaches
- Workflow, tips and traps
- Demonstration in R: The Logistics Performance Index

Module 2. Introduction to Text Mining

- What is text mining
- Basic tools and workflow of text mining
- Demonstration in R: Free Trade Agreements

Module 3. Introduction to Text Based Prediction and Classification

- A Text-Based Classification Problem
- Artificial Neural Networks for Prediction and Classification
- Text as an Input
- Demonstration in R 1: Revisiting the LPI
- Demonstration in R 2: Classifying NTMs

Each of the Modules contains video lectures, a problems set, and a quiz to test your knowledge.

For each module you are provided with the files containing R code scripts and data sets featured in each of the video lectures, so that you can follow by running and studying the code while listening to the lectures.

You are also provided with the datasets to be used when doing each of the problem sets and quizzes.