Universität Basel

Vizerektorat Forschung

Digital Humanities Lab

Machine Learning with R.

Learn to build predictive algorithms with R for social sciences and humanities

Aims

Learn to build predictive algorithms with R

Machine learning is the basis for groundbreaking developments and technologies in business and many branches of research, including social sciences and humanities. Would you like to know what makes machine learning so successful and how you can reap its benefits using the open programming language R?

In this intensive course, you will learn the fundamental principles of machine learning and how to apply them using R: from reading in data, to the application of various algorithms and their evaluation based on key performance measures. You will learn about the characteristics of popular algorithms such as regression, decision trees, and random forests. You will hear about recent developments, such as Deep Learning, and gain an overview over typical machine learning problems, such as regression, classification, and clustering, and discuss the risks and benefits of machine learning for society and business.

Structure

This course takes place from 9am to 6pm on two course days. Each day will contain a series of short lectures and examples to introduce you to new topics. The bulk of each day will be dedicated to hands-on exercises to help you 'learn by doing'.

All course materials, tutorials, examples, exercises, and solutions will be available online for you to view at any time during and after the course. Find the instructors' past materials under the See past materials button on their webpage.

The workshop provides the essential tools to start machine learning in R. A brief overview of the topics addressed in the course:

1. Basics of machine learning with R
2. What is fitting
3. What is prediction
4. What is tuning
5. Why features are key
6. A map of algorithms
7. Looking ahead

Methods / Tools

Participants need their own computer with software installation rights. Basic knowledge of statistics is helpful, but not strictly necessary.

Detailed instructions concerning software installation and voluntary preparation is going to be provided prior to the course.

Target Group

Doctoral Candidates & Postdocs. Participants should possess basic knowledge of the R language. To ensure productive learning, participants are asked to brush up on their R skills either in self-study (e.g., via https://rstudio.cloud/learn/primers) or enroll in the upcoming basic course at The R bootcamp (costs: 200 EUR). If you are interested in participating, but you are unsure whether you meet the prerequisites for this course get in contact with the trainers or participate in this Quiz.

About the Trainer

Dr. Dirk Wulff is an academic researcher and data scientists who has been using R for over 15 years in research and applied settings. He has founded The R Bootcamp (https://therbootcamp.github.io/en/), which offers various courses on data science with R at the University of Basel and other academic and private institutions in and outside of Switzerland. He has further co-founded CorrelAid Switzerland (http://correlaid.ch/) and DataCross (http://datacross.ch/), two data science for-good organizations committed to offering sustainable data science services for non-profit organizations around the world. He currently works as a researcher at the Faculty of Psychology at the University of Basel and is an adjunct researcher at the Max Planck Institute for Human Development in Berlin.

Details

Organization	Digital Humanities Lab, Gabriela Kuster Vettiger, Gaby.kuster@unibas.ch
Language	English
Date & Time	2-day course: Thur 15 – Fry 16. September, 9am-6pm
Location	Online or Hybrid (depending on Corona situation)

Course Fees & Registration

This course is free of charge and for master students, doctoral candidates and postdocs of the University of Basel only (min. 5, max. 15 participants). **Please send an email by 22 July 2022** to Gaby Kuster: Gaby.kuster@unibas.ch