

The [Spanish Economic Association](#) and its Education Committee are pleased to announce that **2<sup>nd</sup> PhD School in Economics** will be given by [Stephen Hansen \(Imperial College Business School\)](#) and [David Rossell \(Universitat Pompeu Fabra\)](#) on

### “Data Science for Large and Unstructured Data”

The School will take place on the day before the start of [the Simposio de la Asociación Española de Economía \(SAEe\) in Barcelona \(Wednesday, December 15<sup>th</sup>\)](#). Following the announcement about the SAEe 2020 turning into a smaller online event, the Spanish Economic Association decided to postpone the SAE PhD School until this year. Hopefully we will be able to exploit the full potential of having students interacting with faculty during this year’s School on the premises of the SAEe if it is feasible to organize the event. Therefore, we will be making **a new call for applicants for 2021 PhD School**.

The School aims to present prominent researchers who will offer a broad perspective of their research areas. The School will also feature a session on early career advice for PhD students; on topics such as surviving the PhD, research presentations, choice of research topics, and the like.

The number of available places is limited. Applicants must submit their academic CV (which should include contact details of academic advisors or sponsors) by **September 6<sup>th</sup> to [phd.school.sea@gmail.com](mailto:phd.school.sea@gmail.com)**.

Admission to the School will be based on academic merit. Applicants with a paper accepted to be presented at Simposio will be given priority. The deadline to submit papers to the Simposio is July 11<sup>th</sup>. To submit a paper to Simposio, please follow: [http://www.asesec.org/simposio/call\\_for\\_papers.html](http://www.asesec.org/simposio/call_for_papers.html).

Participants of the PhD School need to register the Simposio. The Spanish Economic Association will award 20 fellowships for students participating in the School. The fellowships will cover the registration fees for the selected candidates. Admission to the School and awarded fellowships will be announced on **October 15<sup>th</sup>**, at the same time as decisions on submissions to the Simposio are made public.

### Short Description

The School will have two sessions. The first session will deal with the analysis of data with many covariates, such as estimating treatment effects with many control variables, both via structured regression and more flexible machine-learning methods. We will introduce the problem and motivating examples, relevant considerations to obtain reliable inference and high-dimensional regression methods based on LASSO and Bayesian regression. We will also discuss flexible methods such as classification trees. Throughout, we focus on methods that attempt to guarantee reproducible findings via the Statistical quantification of uncertainty, and on providing high-level intuition over technical details.

The second session will introduce methods for unsupervised learning and unstructured data. Unsupervised learning addresses situations where, unlike regression, there is no pre-defined outcome, whereas unstructured data refers to non-standard data such as text. We discuss tools to extract interesting patterns from such data, and their use for problems in Economics.

### Background

Participants should have taken first-year master level courses in mathematical statistics and econometrics at a minimum. Familiarity with the basic concepts of probability theory, statistical inference, and least squares methods will be required.