

		<p>The 4<sup>th</sup> International IPSA – HSE Summer School for Methods of Political &amp; Social Research</p> <p>Course Syllabus</p>
<b>Course title:</b>	Basic Statistics and Reporting in R with RStudio	
<b>Instructor:</b>	Anna Shirokanova <a href="https://www.hse.ru/en/staff/shirokanova#teaching">https://www.hse.ru/en/staff/shirokanova#teaching</a>	
<b>ECTS / academic hours</b>	1 ECTS / 76 academic hours: 38 contact hours, 38 self – study hours	
<b>Brief course description (up to 100 words):</b>	<p>This course offers an introduction to popular statistical tests and project reporting in R and R Markdown. Participants will learn the techniques of data wrangling, parametric and non-parametric tests and linear regression in R. In addition, the course will introduce creating interactive reports in RStudio. By the end of this course, participants will have completed a full-cycle analysis in R, from reading in the data, performing basic pre-processing, to performing statistical tests and reporting the results. Previous knowledge of statistical tests and any statistical software is not required but will be an asset.</p>	
<b>Indicative concepts (up to 10):</b>	<ul style="list-style-type: none"> <li>variable measurement</li> <li>data wrangling</li> <li>means comparison</li> <li>test of independence</li> <li>analysis of variance</li> <li>linear regression</li> <li>regression diagnostics</li> <li>assumptions testing</li> <li>reporting</li> <li>data visualization</li> </ul>	
<b>Workshops' overview:</b>	Day 1	Variable measurement scales. Data classes in R. R and RStudio environment.
	Day 2	Data wrangling: renaming, merging, splitting variables, subsetting a dataset. Drawing basic plots.
	Day 3	Chi-square test of independence. Comparing group means.
	Day 4	Linear regression. Diagnostics of linear regression.
	Day 5	Reporting with R Markdown. Interactive reports and graphics.
<b>Assessment techniques to receive graded certificate:</b>	<p>At the online exam, participants will solve a data problem and prepare a report of it in R. The data problem will require using one of the tests covered by the course. To prepare for the exam, participants will get a homework task after each of the first four days, which will be discussed in the morning session the day after.</p>	
<b>Course Requirements / Prerequisites</b>	<p>Prior knowledge of basic statistics is required (sampling, central limit theorem, null hypothesis statistical testing).</p> <p>No prior experience with R or RStudio is required. Previous experience with Stata, SAS, IBM SPSS or other statistical software will be an asset.</p>	
<b>Essential readings: (Reading list will be supplemented with other sources and distributed during Day 1)</b>	<p>To revise the knowledge of statistical tests: Diez, D.M., Cetinkaya-Rundel, M., &amp; C.D. Barr (2020) OpenIntro Statistics, 4th ed. URL: <a href="https://www.openintro.org/book/os/">https://www.openintro.org/book/os/</a>.</p> <p>It is recommended to gain a general understanding of the R software and its working principles with any educational videos or textbooks released 2013 and later which are available at the library. For instance: Wright, C., et al. (2021) Tidyverse Skills for Data Science in R <a href="https://leanpub.com/tidyverseskillsdatascience">https://leanpub.com/tidyverseskillsdatascience</a></p>	
<b>Contacts:</b>	ashirokanova@hse.ru	