

Teaching the Theory of Information and Coding with R

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The R system is a very appropriate resource for teaching statistic topics in a computer science faculty. Its powerful programming language may be used by the students to develop algorithms and to explore theoretical questions for a better understanding. These reasons guided us to use the R system as the main tool for the computer classes accompanying the subject “Theory of Information and Coding” in the Computer Science Engineering career offered by the University of Seville. So, from the interaction between the teachers and the students many R programs covering different tasks have been designed. For example, we have used R for visualizing the entropy, for simulating communication channels including the estimation of the probability of bit and block errors, and several linear and circular codes have been programmed. Moreover, some elements of data and image compression codes have also been written in R.

Currently, we are supervising the building of a package including these resources and a web page. Our presentation will describe these teaching experiences and the main developed programs.