

# Final Assignment - Dataset Chemical Elements

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# Chemical elements and Enviromental risks

The analysis of some chemical elements contained in the hair can be effectively used as a screening procedure to identify geographical areas of most significant environmental risk.

In this study, we collected information about 417 hair samples from adolescents from two different geological areas called "SIC (Palermo and province)" and "ET (Etna countries)". The geological area ET is characterized by the presence of Etna (volcanic zone), while the area SIC is lithologically constituted by sedimentary rocks. Several chemical elements have been collected for each sample. We have also inserted the *Gender* variable, which could be confounding variables.

This study aims to verify whether it is possible to discriminate, through a graphical model, people coming from volcanic geological areas and those coming from areas made up of sedimentary rocks through the chemical elements collected. Verifying this hypothesis would reinforce the idea that chemical analyzes on hair could lead to identifying areas of environmental risk.

Please write a report no longer than 5 pages (tables and figures exluded) in which you analysis with graphical models the dataset Chemicals.

# Variable description

- Sex, (M and F),
- Code, ET (Paesi Etnei) and SIC (Palermo e provincia),
- Chemical Elements. Read more on the elements in:  
<https://www.lenntech.it/periodica/nome/alfabetico.htm>

Note that the chemical elements measures have been standardized.