Because of its statistical and graphical capabilities, R has become part of the

actuarial toolkit. However, actuaries often lack systematic training in

efficient data manipulation with R.

In this session, we will review fundamental R data structures and their

application to insurance data. Participants will learn to perform basic

actuarial procedure using modern data manipulation librairies (tidyverse).

Five modules will cover different aspects of a reserving and ratemaking

workflow (policy/claim data manipulation, rating, loss development,

indications), with examples taken from CAS Exam 5 study notes (Werner, Appendix

C). In each module, participants will discuss practical R programming problems

in small groups.

Participants will gain a better grasp of R data structures and their

application to insurance data. They will be able to script basic data manipulation

pipelines that perform routine actuarial procedures.

Participants should have basic programming skills (not necessarily in R) and

some experience performing basic actuarial procedures.

Select the most appropriate R data structure to represent different types of actuarial concepts: vector, list, data frame, array, date,...

Write R scripts that load, manipulate and export insurance data in R, using state-of-the-art libraries: tidyverse, dplyr, lubridate, purrr,...

Perform simple standard actuarial procedures in R: aggregate claim/policy data, calculate summary ratios, calculate and develop claim triangles,...