Project (5): Actuarial Student Users’ Guide to the R Programming Language

*Project description:* The research students will prepare a guide to the R programming language for actuarial students. The aim is to provide a set of useful, typical examples with sample R code and output.

*Faculty leader:* David Varodayan  
*Student participants (3):* Arun Madappat, Diyana Najwa Nor Azmi, Jimmy Huang

*Progress report:* The students prepared a guide to the R programming language for actuarial students. The aim was to provide a set of useful, typical examples with sample R code and output. The guide covered the R “base” package as well as the following additional packages related to actuarial science:

- Stats package
- TVM package (time value of money)
- Lifecontingencies package (demographic, financial and actuarial mathematics on life contingencies insurances calculations)
- NMOF package (numerical methods and optimization in finance)
- AmericanCallOpt (pricing functions for American call options)
- RQuantLib package (quantitative analysis, modeling, trading, and risk management of financial assets)
- VarSwapPrice package (pricing a variance swap on an equity index)
- fOptions package (option valuation)

*Status:* Completed. The students delivered the guide “R for Actuarial Science Students,” which is posted to the new Undergraduate Research Program website.