Ratemaking and Experience Rating
Master in Actuarial Science - 2nd year (3rd Sem.), 2017/18

1 Programme

1. Introduction and concepts

2. Credibility theory

   (a) The credibility formula
   (b) Classical and Bayesian methodology
   (c) Bühlmann's model
   (d) Bühlmann-Straub's model
   (e) Exact credibility
   (f) Parameter estimation

3. Bonus-malus systems

   (a) Introduction and definitions
   (b) Markov analysis
   (c) Evaluation measures

4. Ratemaking and GLM. Applications

2 References

- Klugman, S.A.; Panjer, H.H. & Willmot, G.E. (2008 or 2012). *Loss Models, From Data to Decisions*, 3rd or 4th editions, John Wiley, Hoboken NJ.

- Kaas, R.,Goovaerts, M., Dhaene, J. e Denuit, M. (2008). *Modern Actuarial Risk Theory: Using R*, 2nd edition, Springer.

- Ohlsson, E. & Johansson, B. (2010). *Non-Life Insurance Pricing with Generalized Linear Models*, EAA series/EAA Lecture Notes, Springer.

- Pitrebois, S., Denuit, M. & Walhin, J.F. (2003). Setting a bonus-malus scale in the presence of other rating factors: Taylors work revisited, *ASTIN Bulletin*, 33(2), 419-436.

- Centeno, M.L. (2003). *Teoria do Risco na Actividade Seguradora*, Celta Editora, Oeiras, Portugal.

3 Assessment

Evaluation will be twofold: A final exam according to ISEG's exam regulations at the end of the semester and a project. Exam is individual and the project is a tariff build and realized by group of students. Project grade has a weight of 20% in the final mark.

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