

Oblig Autumn 2012

Introduction

There are two problems making up the two obligs in the description of the course. Both must be answered. Solutions are returned on paper to Erik Bølviken no later than Friday November 9, either in person at one of the lectures or through ordinary mail to *Matematisk Institutt Postboks 1053 Blindern, 0316 Oslo*. It is not forbidden to discuss problems and issues with others, but each student must hand in his/her own version, written individually.

Problem I

Write a short essay (a couple of pages long) where you summarize the significance of claim intensities varying over the portfolio and also that they may oscillate from one period in time to another. Comment on the impact on both pricing and financial control. Try to support your views with mathematical results from the course (which you do not prove).

Problem II

Download the The Belgian fire data *belgianfire.txt* from the home page and determine a possible model for these losses.

Use the model to compute the 5% and 1% one-year reserve when the portfolio receive 25 claims on average with maximum responsibility b per claim. Tabulate the results when $b = 30, 50, 70, 90$.

Study the sensitivity of the 5% and 1% reserve with the respect to errors in the loss model when $b = 90$. There are several ways to approach such issues. All of them re-computes the reserve for other loss models that are plausible under the historical data and examine how much the estimated reserves vary. Figure out the detailed attack yourself.