

**ACTU 459 (MAST 726/MAST 881), Sec. E**  
Loss Distributions  
*Winter 2024*

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**Class Schedule:** Mondays-Wednesdays: 14:45-16:00.

**Office hours:** TBA.

**Goal:** The problem of fitting probability distributions to loss data is studied. In practice, heavy tailed distributions are used (i.e. skewed to the right) which require some special inferential methods. The problems of point and interval estimation, test of hypotheses and goodness of fit are studied in detail under a variety of inferential procedures (empirical, maximum likelihood) and of sampling designs (individual/grouped data, truncation and censoring). Loss data sets serve as illustration of the methods.  
The statistical package S-Plus or the (shareware) statistical software R or the spreadsheet EXCEL application will be used for data analysis.

**Text:** Klugman, S.A., Panjer, H.H. and G.E. Willmot (2012) "Loss Models", 5th Edition, Wiley, New York ; you can also use the 3<sup>rd</sup> (or 4<sup>th</sup>) Edition, if you already own a copy.

**Other texts:** Klugman, S.A., Panjer, H.H. and G.E. Willmot (2008) "Loss Models", 3rd Edition, Wiley, New York.

Hogg, R.V., McKean, J.W. and A.T. Craig (2005) "Introduction to Mathematical Statistics", 6th Edition, Pearson, Upper Saddle River, NJ.

Lawless, J.F. (2003) "Statistical Models and Methods for Lifetime Data", 2nd Edition, Wiley, Hoboken, NJ.

**Calculators:** The only calculators allowed in exams for this course are the ones approved by the SOA/CAS exams: the Texas Instrument calculator models BA-35, BA-II Plus, BA-II Plus Professional, TI-30Xa, TI-30XII (IIS solar or IIB battery), TI-30XS MultiView (or XB battery). This rule will be strictly enforced.

**Assignments:** There will not be graded assignments. The evaluation is based on three tests and the modeling project (oral and report). There will be no make-up exams.

**Final Grade:** The final grade will be determined as follows:

- a) 3 Exams: 80% (that is 30%, 25% and 25%, respectively)
- b) Project Oral: 5%
- c) Project Report: 15%

If the grading scheme for this course includes graded assignments, a reasonable and representative subset of each assignment may be graded. Students will not be told in advance which subset of the assigned problems will be marked and should therefore attempt all assigned problems.

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