Corrections and Comments for *Loss Models*, fourth edition, May 2016

Page xiii – In line 13 replace "intead" with "instead."

Page 34 – The following should replace the last two sentences on this page: "Comparisons between distributions can be made on the basis of whether the mean excess loss function is increasing or decreasing. In particular, a distribution with an increasing mean excess loss function has a heavier tail than a distribution with a decreasing mean excess loss function."

Page 89 – In line 5 change "Chapter 13" to Chapters 13 and 14."

Page 138 – Example 9.1. The equation to solve should be $\frac{0.11n - 0.1n}{\sqrt{0.1(0.9)n}} = 1.645.$ The solution is *n* = 2,435.42 and so at least 2,436 policies must be sold.

Page 145 – In the fourth line from the bottom, replace 0.2338 with 0.02338.

Page 205 – Add "age" after "issue" in line 2.

Page 244 – The two solutions are $\hat{q}_{33} = 1/(53/12) = 0.2264$ and $\hat{q}_{34} = 1/(40/12) = 0.3$.

Page 247 – The last entry on line 5 of Example 12.19 should be $1 + (0-1)/2 = 0.5$.

Page 253 – End of first paragraph, change " the next chapter" to "Chapter 15."

Page 283 – In line 3 replace $a > b$ with $b > a$.

Page 283 – In line 6 of the second full paragraph, insert "die" between "not" and "in."

Page 283 – In the equations for the likelihood function, replace δ_j with $1 - \delta_j$ and vice-versa. There is no exponent of -1 on the lambda at the end of the first line. The first line of the equation is

$$L(\lambda) = \prod_{j=1}^{n} \left[\frac{S(h_j)}{S(g_j)}\right]^{1-\delta_j} \left[\frac{f(h_j)}{S(g_j)}\right]^{\delta_j} = \prod_{j=1}^{n} \left[e^{-(h_j - g_j)\lambda}\right]^{1-\delta_j} \left[\lambda e^{-(h_j - g_j)\lambda}\right]^{\delta_j}.$$

Page 284 – The third equation does not have a minus sign. The correct equation is

$$\frac{dq}{d\lambda} = (b-a)\exp[-(b-a)\lambda].$$

Page 284 – In Example 13.17, second line of second paragraph, replace the second equals sign with a minus sign to read $\hat{q}_{35} = 1 - \exp(-210/9{,}702.8) = 0.02141$.

Page 285- First sentence of Section 14.1, change "earlier in this chapter" to "in Chapter 13."

Page 308 – Example 15.2 first line, "repeate" should be "repeat." The calculations are incorrect in the example. The correct version is:

$$f(x\mid\alpha)=\frac{\alpha^8(100)^{8\alpha}}{\left(\prod_{x_j<200}x_j^{\alpha+1}\right)}\left(\frac{100}{200}\right)^{2\alpha}=\alpha^8e^{-3.225393\alpha-38.680460}$$

$$f(x,\alpha)=\alpha^9e^{-4.225393\alpha-38.680460}$$

$$f(\alpha\mid x)=\frac{\alpha^9e^{-4.225393\alpha}}{(9!)(1/4.224393)^{10}}$$

Which is a gamma distribution with parameters 10 and ¼.225393.

For the predictive distribution $f(y\mid x)=\dfrac{10(4.225393)^{10}}{y(-0.379777+\ln y)^{11}}$

Page 311 – In line 11, “red” should be “blue.”

Page 327 – In Figure 16.2, the vertical axis should be *f*(*x*)

Page 447 – Example 20.11, last part should be “ $y=\sqrt{-2\ln(0.1096)/0.1096}=6.3518$ and $z_1=-0.3(6.3518)=-1.906$ and $z_2=0.14(6.3518)=0.889$.”

NOTE – The following two items will not be added at this time to the formula sheet used with Exam C.

Page 465 – For the Pareto distribution, the limited expected *k*th power has a different form when $k=\alpha$. It is

$$E[(X\wedge x)^\alpha]=\theta^\alpha\left(\frac{x}{x+\theta}\right)^\alpha\left[1+\alpha\sum\nolimits_{n=0}^{\infty}\frac{[x/(x+\theta)]^{n+1}}{\alpha+n+1}\right]$$

Page 473 – For the Single-parameter Pareto distribution, the limited expected *k*th power has a different form when $k=\alpha$. It is

$$E[(X\wedge x)^\alpha]=\theta^\alpha[1+\ln(x/\theta)].$$

Corrections and Comments for the *Solutions Manual to Loss Models*, fourth edition

Page 19 – Solution to 3.29(f). At the end of the calculation of the derivative of *e*(*x*) add “and is equal to zero only at *x* = 0.”

Page 64 - Solution to 8.30. The original Pareto distribution is for losses. So adjusting for a deductible of 1000 should be with respect to a deductible of 0. The cdf should be

$$F(x)=\frac{F(x+1000)-F(1000)}{1-F(1000)}=\frac{\left(\frac{1000}{1000+1000}\right)^2-\left(\frac{1000}{1000+1000+x}\right)^2}{\left(\frac{1000}{1000+1000}\right)^2}=1-\left(\frac{2000}{2000+x}\right)^2$$, which is Pareto

with $\alpha=1$ and $\theta=2000$.

Page 71 – Solution to 9.12. The fourth line of the variance calculation should include 248 to be 33(3.2) + 248 + 9(8)(0.4)(0.6) = 370.88. The answer is correct.

Page 77 – Solution to 9.33. Replace the published solution with the following:

The probabilities of 0, 1, and 2 claims are, respectively, 1/(1 + 1.5) = 0.4, 0.4(0.6) = 0.24, and 0.24(0.6) = 0.144. The insured's expected payment is 0.4(0) + 0.24(100) + 0.144(200) + (1 – 0.4 – 0.24 – 0.144)(300) = 117.6. The insurance company's expected payment is 1.5(100) – 117.6 = 32.4.

Page 79 – Solution to 9.40. The standard deviation (requested in the question) is $\sqrt{7.7\times10^{10}}=277,489$. The last two lines of the solution should be:

$$\Pr(S=3)=\frac{140}{3}\left[\frac{5}{14}1{,}310e^{-140}+2\frac{6}{14}e^{-140}\right]=23{,}833.33e^{-140}$$

$$\Pr(S>3)=1-25{,}194.33e^{-140}.$$

Page 123 – Solution to 13.20, in the third to last line, there should be a gamma multiplying ln(336/466).

Page 134 – Solution to 13.53. The first equation should have *w* – 4 – *p* in the numerator, rather than 4 – *w* – *p*.

Page 142 – Solution to 13.71, In line 7, *S*(1,000) should be *S*(1,500).

Page 230 – Solution to 20.14, the first line should have $1-\exp(-2x)$ rather than $1-\exp(-x/2)$.