

A short study note that replaces section 16.5.3 "Score Based Approaches" from the *Loss Models* textbook. This study note updates section 16.5.3 by including material on the Akaike Information Criterion (AIC), along with updating examples to illustrate how to use the AIC.

This note is effective with the **October 2016 exam administration**.

**AIC and BIC are each methods of comparing models fit via maximum likelihood. In each case, a larger value is better.**

**AIC = maximum loglikelihood - number of parameters.**

**BIC is just another name for the Schwarz Bayesian Criterion (SBC).**

Page 8 of the introduction, the link has been changed:

The SOA has posted a preview of the tables for Computer Based Testing:

<https://www.soa.org/Education/Exam-Req/Resources/edu-exam-c-tables.aspx>

1. p.74, sol. 4.57: Payouts of size **two** are Poisson with  $\lambda = (1/4)(5) = 1.25$  per hour.

Payouts of size **three** are Poisson with  $\lambda = (1/8)(5) = 0.625$  per hour.

1, p.90, sol. 5.7, line 4: rate for the year 2001, we give 20% weight to the data for the year **1998**

2, p. 140, solution 14.8: letter solution is **E** rather than D.

2, p. 154, Q 15.21: **\$100** not S100.

2, p. 641, in the comment to the second exercise:  $3 + \ln(1.35) = 3.300$ .

3, p. 212, sol. 6.5:  $CV = \sqrt{25,891} / 430 = 0.374$ .

3, p. 347, sol. 11.53:  $E[(A-2)_+] = E[(A-1)_+] - S(1)$

6, p. 358: In the table the first significance level should be 0.100 (10%)

6, p.767, sol. 24.31:  $\exp[-\theta(7/60 + 1/66 + 1/91 + 1/186)] \theta^3 / \{66^2 91^2 186^2\}$ .

7, p.9, line 3:  $(1/4) / (3/4) = 1/3$ .

7, p.75, sol. 2.10-2.14, line 3 of comment:  $S(15,000) - S(50,000) = \text{Prob}[15,000 < X \leq 50,000]$

7, p.300-301, in several places:  ${}_4\hat{q}_{44}$  should be  ${}_4\hat{q}_{40}$

7, p.330, footnote 121:  $1 - \exp[-(10)(1)/60] = 0.1535$ .

8, p.10, footnote 19, line 3: **550** claims is approximately

8, p.13, middle of the page:  $\Phi\left[\frac{(5\%)(300)}{\sqrt{210}}\right] - \Phi\left[-\frac{(5\%)(300)}{\sqrt{210}}\right]$

9, p.292, sol. 6.55, line 2:  $f(\mathbf{10}) f(\mathbf{30}) S(90)^2$

**9**, p.457, sol. 9.26, alternative solution: Working in the year 2005.

The VHM is:  $(50\%)(9182 - 17,071)^2 + (50\%)(24,959 - 17,071)^2 = \mathbf{62.23}$  million.

$K = EPV/VHM = 3,001.6 / \mathbf{62.23} = 48.2$ . Final answer is OK.

**10**, p. 270, line 8: and the third of size **4**

**11**, Dean at his page 31 uses the unbiased estimator of the variance, in other words the sample variance. In most places in my Guide to Semiparametric Estimation I used the biased estimator of the sample variance.

While it hopefully should not make a difference in the letter choice on your exam, you should follow the syllabus reading and use the unbiased estimator of the variance.

**13**, p.90, Q. 8.17:  $f(\mathbf{y} \mid \mathbf{x})$

**13**, p.361, in the Exercise: integers from 1 to 5.