**1.1**

**1.2 Basics of Bayesian inference**

* Model distribution:
* Joint distribution:
* Prior distribution:

(given)

* Marginal distribution of X:
* Posterior distribution of theta:
* Predictive distribution of a new observation Y given data X:

**1.3 Bayesian parameter estimation**

|  |  |
| --- | --- |
| Loss function | Estimator |
| Squared error loss |  |
| Absolute loss |  |
| Zero-one loss |  |

* Credibility interval
* Shortest interval

**1.4 Bayesian Central Limit Theorem**

**2.2.1 Full creditability:**

Standard of full creditability measured in terms of the number of observation (exposure)

Standard of full creditability in terms of the total risk/loss

**REMEMBER:**

Standard of full creditability in terms of the number of losses/claims

**2.2.2 Partial creditability:**

**2.3 Bayesian creditability**

**Buhlmann's model:**

|  |  |
| --- | --- |
| Hypothetical mean |  |
| Process variance |  |

* **Non-parametric empirical Bayesian estimation for Buhlmann model:**
* **Semi-parametric empirical Bayes estimation for Buhlmann model:**

**Chapter 3**

Empirical distribution function is the same as the CDF, first we rearrange the 's without repetition (let the new ordered sample be ), then we find which is the number of the repetition of in the original sample. And let

* The Nelson-Aalen estimate for the cumulative hazard rate function is:

Empirical distribution for grouped data

|  |  |  |
| --- | --- | --- |
| Interval | # of observations |  |
|  |  |  |
|  | : | : |
|  |  |  |
|  |  |  |
|  |  |  |

**Incomplete data:**

Data:

* Kaplan-Meier Method (Product limit)
* Nelson-Aelon Method:

**Mean and variance for the empirical estimators:**

**For complete data:**

|  |  |  |
| --- | --- | --- |
|  | Individual data | Grouped data |
| Mean |  |  |
| Variance |  |  |

**Estimation of variance of the Kaplan-Meier estimator:**

* Greenwood's approximation:
* Nelson-Aalon estimator:

3.6 CONFIDENCE INTERVAL

* K-M estimator:
* N-A estimator:

**KERNEL DENSITY ESTIMATION:**

|  |  |  |  |
| --- | --- | --- | --- |
|  | Uniform with band w/ b | Triangular | Gamma |
| PDF |  |  |  |
| CDF |  |  |  |