

# *Lecture Notes on Probability Theory*

by Mr. Francis Hung

## Preface

The present material on the other books is neither sufficient nor clear. This set of lecture notes is written for student at Certificate Level. It serves as a lecture notes in classroom for 16 – 18 lectures. Suitable assignments should be given to the students referring to their text in the appropriate section.

Francis Hung

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## Preface to Second Edition

After 15 years of time, the hand-writing lecture notes are typed as a WORD document. Many contents are revised: experimental probability in estimating  $\pi$ , birthday problems, Mark Six Lottery, conditional probability, Bayes' Theorem and the theorem of total probability are added. Besides, many additional examples and exercises (including HKCEE past papers) are included. Writing mistakes, grammatical mistakes, calculation errors and logical errors are corrected. I hoped that it is suitable for the change of examination syllabus.

Francis Hung

19 - 11 - 2004

## Contents

1. Elementary Set Theory
2. Introduction to Probability
3. The three axioms in Probability
4. Mutually Exclusive Events
5. The formula  $P(A \cup B) = P(A) + P(B) - P(A \cap B)$
6. Conditional Probability
7. Independent Events
8. Exclusive Events verse Independent Events
9. Miscellaneous Examples