COURSE DETAIL

PROBABILITY AND STATISTICS: FOUNDATIONS OF ACTUARIAL SCIENCE

Country
Hong Kong

Host Institution
University of Hong Kong

Program(s)
University of Hong Kong

UCEAP Course Level
Upper Division

UCEAP Subject Area(s)
Statistics

UCEAP Course Number
103

UCEAP Course Suffix

UCEAP Official Title
PROBABILITY AND STATISTICS: FOUNDATIONS OF ACTUARIAL SCIENCE

UCEAP Transcript Title
ACTUARIAL SCIENCE

UCEAP Quarter Units
5.00

UCEAP Semester Units

3.30

Course Description
This course introduces the fundamental tools in probability and statistics for quantitatively assessing risk and emphasizes applications of these tools to actuarial science problems. Course topics include: probability (combinatorial analysis, algebra of sets, mathematical theory of probability, conditional probability, statistical independence, Bayes' rule); random variables and probability distributions (random variables, discrete and continuous distributions, joint and marginal distributions, conditional distribution, independence of random variables); mathematical expectation (expectation, mean and variance, moment generating function, covariance and correlation; special distributions (Bernoulli and binomial distributions, geometric and negative binomial distributions, Poisson distribution, hypergeometric distribution, exponential and gamma distributions, normal distribution, quantiles); transformation of random variables; functions of random variables; sampling distributions (sum of independent random variables, sampling distributions of mean and variance, law of large number, central limit theorem, Chi-square distribution, student's t-distribution, F distribution; and introduction of estimation (point estimation, bias and precision). Assessment: assignments and final exam.

Language(s) of Instruction
English

Host Institution Course Number
STAT2901

Host Institution Course Title
PROBABILITY AND STATISTICS: FOUNDATIONS OF ACTUARIAL SCIENCE

Host Institution Campus

Host Institution Faculty

Host Institution Degree

Host Institution Department

Statistics & Actuarial Science

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