



Probability Paradox (MATP2522)

Introduction

Building on the knowledge acquired in the programme “*Probability- When luck meet with Mathematics*”, this course aims to further develop students' ability and to explore their interests in various aspects of probability. The course covers several essential topics in the study of probability. They include the study of counting methods, multiplication law of probability, independence of events and conditional probabilities.

The theories learned could be consolidated through problem solving activities and case-studies approach. Mr. Martin Gardner, a popular Mathematics writer, mentioned in his book “Hexaflexagons and Other Mathematical Diversions” that Probability Theory is a field of mathematics unusually rich in paradoxes, which are sometimes difficult to believe even after one is confronted with their proofs. The course also seeks to give students a taste of probability paradox and invites them to interpret the unexpected results. At the end of this course students will have mastered the basic skills in problem solving related to probability and be able to apply them in daily life situations.

Programme Type / Level

Discrete Math, Probability, Statistics Course (Level 1) ([Token-required](#))

Instructor(s)

Mr. Li Kwok Kwan (Former Vice-Principal of TWGHs Sun Hoi Directors' College, Senior Secondary School Mathematics and Computer Teacher)

Pre-requisite

Students should be able to have:

- basic ideas of probability and simple skills to solve problems related to probability
- meaning and Calculation of Percentage

Target Participants



- P4 to P6 HKAGE student members
- Class size: 30
- * **Students who completed “Probability -When luck meet with Mathematics” (MATP1521) are suggested to apply.**
- * **Priority will be given to student members who are awarded Certificate of Distinction or Certificate of Merit in “Probability-When luck meet with Mathematics” (MATP1521)**

Medium of Instruction



English with English handouts

Certificate



E-Certificate will be awarded to participants who have:

1. attended **AT LEAST 3** sessions AND
2. completed all the assessments with satisfactory performance

Intended Learning Outcomes



Upon completion of the programme, participants should be able to:

1. understand the concept of the multiplication law of probability and apply the law to real-life problems;
2. apply the concepts of Permutation and Combination to solve practical problems;
3. solve simple questions involving the total probability and conditional probability of events;
4. explain and successfully apply all aspects of learned probability techniques in various practical problems.

Screening



Please answer the screening question in the online application form.

*The screening question is designed to help the applicant understands the course level and the course content. The question must be answered by the student applicant and it can only be attempted once. The answer cannot be changed once the application is submitted. Selection is based on students' performance in answering the question. Only students who can demonstrate motivation and knowledge of probability in the screening question can be enrolled in the programme.

Application
Deadline

3 Feb 2020 12:00 n.n
(1st batch)
2 Mar 2020 12:00 n.n
(2nd batch)

Application Result
Release Date

14 Feb 2020 (1st batch)
5 Mar 2020 (2nd batch)

If student members withdraw from the programme after the Application Deadline, the token will be deducted.

Schedule



Session	Date	Time	Venue (HKAGE)
1	2 May 2020	9:30 a.m. – 12:30 p.m.	Room 303
2	9 May 2020		Changed to online lecture (Platform to be used: 1. Zoom Video conferencing 2. Google Classroom 3. Google Forms)
3	16 May 2020		Room 403
4	23 May 2020		Changed to online lecture (Platform to be used: 1. Zoom Video conferencing 2. Google Classroom 3. Google Forms)

Sample Example
for the
Programme

The Choice of a "Millionaire"

In the game show "Who Wants to Be a Millionaire", Susan has to decide whether to leave the game with the prize worth \$250,000 or to attempt the last two questions for the million-dollar prize. If she gets a question wrong, the prize drops to \$10,000. What do you think?

Why does the teacher always pick on me?

There are 30 students in the class. In each lesson, the teacher randomly selects 10 students to answer the questions. But it so happens that there is always one student picked up by the teacher at least twice in the same lesson. The teacher claimed that all students are randomly selected. Do you believe it?

The Birthday Problem

How large must a class be to make the probability of finding two students with the same birthday at least 50%?

Time-bound appointment

Two persons A and B plan to meet in the evening between 8 pm to 9 pm in Tsim Sha Tsui. Anyone who arrives early should wait 20 minutes and then leave. What is the likelihood that they will meet with each other ?

Enquiries

For enquiries, please contact us at 3940 0101 after language selection, press "1".