



## Probability without Calculus (E2MAT008C)

<b>Introduction</b>	<p>Probability concepts and theories are often applied in data science and machine learning programming. This course would introduce related probability topics in blended learning mode with online learning and face to face tutorials. Students would follow the teacher's instructions to study the materials to complete each topic. Topics include:</p> <ol style="list-style-type: none"><li>1. Probability introduction: probability axioms, distribution, events, expected value, etc.</li><li>2. Conditional probability: independence, law of total probability, Bayes' theorem, etc.</li><li>3. Random variables: variance, linearity of expectation, covariance, joint variables etc.</li><li>4. Discrete distribution family: Bernoulli distribution, binomial distribution, geometric distribution, waiting time etc.</li></ol> <p>The course is about 4 to 5 weeks with an estimated learning hour of 17 to 20 hours with an online assessment.</p>
<b>Programme Type / Level</b>	Probability Course (Level II) ( <a href="#">Token-required</a> )
<b>Instructor(s)</b>	<p>Mr Wu Kai Chiu</p> <p>Mr Wu is a quant working in latest AI and big data technology in financial market. He is also a researcher in mathematics and computer science. His research awards include the best paper in conference held in Cambridge and a national Honorable Mentioned thesis. He has been an organizing committee of various mathematical competitions. He was a teacher in mathematics and computer science in local secondary school.</p>
<b>Pre-requisite</b>	No special prerequisites are needed
<b>Target Participants</b>	<ul style="list-style-type: none"><li>➤ S1 – S4 HKAGE student members in 2021/22 school year only</li><li>➤ Class size: 30</li></ul> <p>* <i>First-come-first-served.</i></p>
<b>Medium of Instruction</b>	<p>Online course: English handouts, students can ask questions on the online platform in either English or Chinese</p> <p>Tutorial: Cantonese (Supplemented by English) with English handouts</p>
<b>Certificate</b>	<p><b>E-Certificate</b> will be awarded to participants who have:</p> <ul style="list-style-type: none"><li>❖ Completed all the assignments with <b>satisfactory performance</b></li></ul>
<b>Intended Learning Outcomes</b>	<p>Upon completion of the programme, participants should be able to:</p> <ol style="list-style-type: none"><li>1. define conditional probability and state Bayes' Theorem;</li><li>2. solve problems with situations in which jointly independent random variables are involved;</li><li>3. solve problems with linearity of expectation;</li><li>4. describe the features of common discrete distributions;</li><li>5. develop self learning skills (e.g. time management, seeking assistance, etc) to complete the programme.</li></ol>
<b>Application Deadline</b>	<b>13 Dec 2021, 12:00 noon</b>
If student members withdraw from the programme after the Application Deadline, the token will be deducted.	

## Schedule

Session	Date	Time	Venue
Online Introduction	22 Jan 2022	9:30 a.m. – 10:00 a.m.	Zoom meeting
1st week	24 to 30 Jan	Estimated learning hour : 3 hours	Online platform
2nd week	31 Jan to 6 Feb	Estimated learning hour : 3 hours	Online platform
Tutorial 1*	5 Feb	11:00 a.m. – 12:30 p.m.	HKAGE Rm 303
3rd week	7 to 13 Feb	Estimated learning hour : 3 hours	Online platform
4th week	14 to 20 Feb	Estimated learning hour : 3 hours	Online platform
Tutorial 2*	19 Feb	11:00 a.m. – 12:30 p.m.	HKAGE Rm 204
Online assessment	Opening date: 7 Feb Closing date: 28 Feb	2 attempts available. Only the highest attempt would be counted.	Online platform

### Remarks:

Online introduction session would explain the arrangement of this course and how to use the related online platforms.

Tutorial session is for students to ask questions about the course content. It is optional for the students to attend based on their learning progress.

## Enquiries

For enquiries, please contact us on 3940 0101 or email at [programme@hkage.org.hk](mailto:programme@hkage.org.hk).