



ALGEBRA SERIES: **VECTORS**

(MATS3320)

Introduction

A series of Algebra programmes offered by the **Department of Mathematics, The University of Hong Kong**, are designated for Maths lovers to learn Algebra progressively.

The **Algebra Series** consists of the following programmes:

Programme	Code	Application	Programme held
Matrices and Determinants	MATS3230	Jul 2019	Oct 2019
Vectors	MATS3320	Oct 2019	Dec 2019
Matrices and Equations	MATS3240	Jan 2020	Mar 2020
Linear Algebra	MATS3250	Apr 2020	Jun - Jul 2020

Here comes the second programme in the **Algebra Series**, Vectors.

In physics, a vector is usually described as an object with both magnitude and direction. Indeed, the concept of vectors finds lots of applications in physics. Vectors can also be treated in a more mathematical way, and such treatment forms part of the foundation of linear algebra.

Programme Type / Level

Geometry and Topology Course (Level 4) ([Token-required](#))

Instructor(s)

Dr Ching Tak Wing

Pre-requisites

Student should have basic knowledge in Computation of determinants.

Target Participants

- S1 to S6 HKAGE student members
- Class size: 25



Priority will be given to student members who have passed MATS3230 and they could have direct admission to this programme when apply.

Medium of Instruction



English with English Handouts

Certificate



E-Certificate will be awarded to participants who have:

- ❖ Attending **AT LEAST 3 sessions** AND
- ❖ Satisfactory performance in both assignments and assessments

Intended Learning Outcomes



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

1. carry out basic operations on vectors;
2. solve simple problems related to various vector products;
3. apply the concept of vectors in a variety of geometry problems.

Application Deadline

11 Nov 2019
12:00 n.n.

Application Result Release Date 22 Nov 2019

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

Schedule
(Tentative)



Session	Date	Time	Venue (HKAGE)	Content
	16 Nov- 2019 [Cancelled]	10:00 a.m. – 12:00 n.n.		Screening Test
1	7 Dec	9:30 a.m. – 12:30 p.m.	Room G05	Basic Operations on Vectors
2	14 Dec			Dot, Cross and Scalar Triple Products
3	21 Dec			Applications of Vectors to Geometry
4	28 Dec			Test and Discussions

Remarks: For any assessment to be held in the programme, no make-up will be arranged, including Screening Test.

Sample
Examples for
the Programme

- Find the angle between the vectors $\begin{pmatrix} 0 \\ 1 \\ 1 \end{pmatrix}$ and $\begin{pmatrix} 2 \\ -2 \\ -1 \end{pmatrix}$.
- Prove the Cauchy-Schwarz inequality for vectors in \mathbb{R}^n .

Enquiries



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