



ALGEBRA SERIES: MATRICES AND EQUATIONS (MATS3240)

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 third programme in the **Algebra Series**, Matrices and Equations.

Systems of linear equations occur in many real-life applications. Exploring efficient ways to solve such systems is of both theoretical and practical interest. The theory of linear systems forms a fundamental part of the subject of linear algebra.

Programme Type / Level

Algebra Course (Level 4) ([Token-required](#))

Instructor(s)

Dr Ching Tak Wing

Pre-requisites

Student should have basic knowledge in:

- Basic operations on matrices
- Computation of inverses and determinants of matrices
- Basic properties of vectors

Target Participants

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



Priority will be given to student members who have passed **BOTH** MATS3230 and MATS3320. 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:

- ❖ Attended **at least 3 sessions** **AND**
- ❖ Had Satisfactory performance in both assignments and assessments

Intended Learning Outcomes



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

1. determine the number of solutions to a linear system;
2. find the general solution to a linear system;
3. use matrix-related methods to solve a linear system.

Application Deadline

10 Feb 2020
12:00 n.n.

Application Result Release Date **21 Feb 2020**

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

Schedule (Tentative)



Session	Date	Time	Venue	Content
	15 Feb 2020 [Cancelled]	10:00 a.m. – 12:00 n.n.	RR210 HKU	Screening Test
1	7 Mar			Solutions to Systems of Linear Equations
2	14 Mar	9:30 a.m. – 12:30 p.m.	RR210 HKU Online Teaching	Row Operations and Row Echelon Matrices
3	21 Mar			Determinants and Linear Systems
4	28 Mar			Test

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

Sample Examples for the Programme

1. Solve the system of equations
$$\begin{cases} 2x+y-z=3 \\ -x-2y+3z=1. \\ -3y+5z=5 \end{cases}$$

2. Find the values of a for which
$$\begin{cases} ax-y+z=2 \\ x+3y+2z=a \\ x-y-az=1 \end{cases}$$
 has a unique solution.



Enquiries

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