香 港 資 優 教 育 學 苑
The Hong Kong Academy for Gifted Education

ALGEBRA SERIES: MATRICES AND DETERMINANTS (MATS3230)

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 first programme in the *Algebra Series*, Matrices and Determinants.

In real life we often present information in a table. In mathematics, a matrix is like a 'table' of numbers. By defining various operations on matrices and establishing the corresponding theories, the subject finds applications in many disciplines including physics, engineering, computer science, economics and finance.

This programme is co-organized with the Department of Mathematics, The University of Hong Kong

Programme Type / Level	Algebra Course (Level 4) ([Token-required])
Instructor(s)	Dr Ching Tak Wing
Pre-requisites	Student should have basic knowledge in: Basic arithmetic and algebraic manipulations up to senior secondary school level
Target Participants	➢ S1 – S6 HKAGE student members ➢ Class size: 25 All applicants **MUST** attend the screening test held on **17 Aug 2019** in **HKU**
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 addition, subtraction, scalar multiplication and transposition of matrices; 2. find the determinant of a square matrix; 3. find the inverse of an invertible matrix.

| | Application Deadline | **12 Aug 2019 12:00 n.n.** | Application Result Release Date | **30 Aug 2019** |

<table>
<tr><td>Application
Deadline</td><td colspan="2">**12 Aug 2019
12:00 n.n.**</td><td>Application Result Release Date</td><td>**30 Aug 2019**</td></tr>
<tr><td colspan="5">If student members withdraw from the programme after the Application Deadline, the token will be deducted.</td></tr>
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Schedule

Session	Date	Time	Venue	Content
	17 Aug	**10:00 a.m. – 12:00 n.n.**	**JLG05 HKU**	**Screening Test**
~~Cancelled~~	~~5 Oct~~			
1	12 Oct			Basic Operations on Matrices
2	19 Oct	9:30 a.m. – 12:30 p.m..	RR210 HKU	Determinants
3	26 Oct			Matrix Inverses
4	2 Nov			Test and Discussions

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

JLG: James Hsioung Lee Science Building ground floor
RR: Run Run Shaw Building

Sample Examples for the Programme

1. Find the determinant of the matrix $\begin{pmatrix} 1 & 0 & 1 \\ 2 & 1 & 1 \\ 0 & -1 & 2 \end{pmatrix}$.

2. Find the inverse of the matrix $\begin{pmatrix} 2 & 0 \\ -1 & 1 \end{pmatrix}$.

Enquirie

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