

# COURSE DETAIL

## MATRIX ALGEBRA AND APPLICATIONS

**Country**

Hong Kong

**Host Institution**

Hong Kong University of Science and Technology (HKUST)

**Program(s)**

Hong Kong Summer, HKUST

**UCEAP Course Level**

Lower Division

**UCEAP Subject Area(s)**

Mathematics

**UCEAP Course Number**

21

**UCEAP Course Suffix**

S

**UCEAP Official Title**

MATRIX ALGEBRA AND APPLICATIONS

**UCEAP Transcript Title**

MATRIX ALGEBRA

**UCEAP Quarter Units**

4.50

**UCEAP Semester Units**

3.00

### **Course Description**

This course introduces matrix algebra and its applications. Key topics include: systems of linear equations; linear transformations; matrix representation of linear transformations; linear operators, eigenvalues and eigenvectors; similarity invariants and canonical forms, and inner product spaces, elementary matrices, determinants and its properties, Cramer's Rule and inverse formula, areas and volumes, vector spaces and subspaces, subspaces associated with matrices, linear independent sets and bases, coordinate systems and dimension, orthogonality and orthonormal sets, orthogonal projections and Gram-Schmidt process, least square solutions and applications. Text: David C. Lay, LINEAR ALGEBRA AND ITS APPLICATIONS. Assessment: homework (10%), midterm exam (30%), final exam (60%).

### **Language(s) of Instruction**

English

### **Host Institution Course Number**

MATH2111

### **Host Institution Course Title**

MATRIX ALGEBRA AND APPLICATIONS

### **Host Institution Course Details**

### **Host Institution Campus**

HKUST International Summer School

### **Host Institution Faculty**

### **Host Institution Degree**

### **Host Institution Department**

Mathematics

## Course Last Reviewed

2023-2024

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