# Linear Algebra, Linear Difference Equation Systems and Introduction to MATLAB

In Cooperation with the GRADE Center GSEFM

## Objective

The GRADE Center GSEFM opens its „pre-semester courses“, held by advanced PhD candidates, to all PhD candidates registered at GRADE. These courses cover different topics.

## Description

1. Introduction to MATLAB
2. Matrix Algebra (Theory and Numerical Illustration in MATLAB)
   - Rank, Determinant and Inverse
   - Eigenvalues and Eigenvectors
   - Similarity Transformations
3. Systems of Static Linear Equations (Theory and Numerical Illustration in MATLAB)
4. Systems of Linear Difference Equations (Theory and Numerical Illustration in MATLAB)
   - Autonomous Systems: Diagonalization, Jordan Normal Form and Real-Valued Representations
   - Backward and Forward Solutions
5. Vector and Matrix Differentiation (Theory and Numerical Illustration in MATLAB)

## Conditions

Participants are expected to have a solid undergraduate background in mathematics. Those missing some of this background are expected to have worked through the following reference prior to the beginning of the course:

*Chiang, A.C. and K. Wainwright (2005): Fundamental Methods of Mathematical Economics, Mc Graw-Hill Irwin.*

**The pre-semester courses, epidemiological situation permitting, will be held in in-person format.**

**Trainer**

**Dang Phuong Minh Lam**
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GRADE Center GSEFM

## Organizational Information

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|---|---|
| **Language / Format** | English / On campus |
| **Target group** | Doctoral Candidates from all faculties |
| **Date** | Tuesday-Friday, 20-23 September 2022, 10:00 – 12:00 & 13:00 – 15:00 |
| **Registration** | **For registration click here** |