

National Tsinghua University

ECON7095 (1st Semester 2023)

Introduction to Mathematical Methods (先修數量方法導論)

Instructor:

CY (Chor-yiu) SIN (洗芻堯老師)

Room 804, TSMC Building

Tel.: +886-(0)3-516-2134

Fax.: +886-(0)3-572-2476

Email: cysin@mx.nthu.edu.tw or cysinhkbu@gmail.com

Objective of this course:

This is a **preliminary course** (先修課程) which aims at familiarizing graduate students with mathematical methods in various courses in the graduate programs in Economics, such as <<Advanced Macroeconomics>>.

Assessment:

Attendance is compulsory. Other assessment criteria include assignments and examination(s).

Tentative time schedule:

As a **preliminary course** for some other courses offered in the regular semester, **this course is supposed to end before the regular semester begins.** That said, due to the University's administrative matters, there will be make-up class(es) and/or examination(s) after the regular semester begins.

Venue: TBA

Tentative course contents:

1. Differential Equations
2. Useful Results in Calculus

3. Useful Results in Matrix Algebra
4. Static Optimization
5. Dynamic Optimization in Continuous-Time Economic Models
6. Dynamic Programming
7. Matrix Algebra
8. Probability Theory I
9. Probability Theory II
10. Modes of Convergence

References:

Acemoglu, Daron (2009): Introduction to modern economic growth. Princeton: Princeton University Press.

Barro, Robert J. and Sala-i-Martin, Xavier (2004): Economic growth. Cambridge, Massachusetts: Cambridge University Press.

Bierens, Herman.J. (1994): Topics in advanced econometrics: estimation, testing, and specification of cross-section and time-series models. Cambridge, England: Cambridge University Press.

Corbae, Dean, Stinchcombe, Maxwell B. and Zeman, Juraj (2009): An introduction to mathematical analysis for economic theory and econometrics. Princeton, New Jersey: Princeton University Press.'

Simon, Carl P. and Blume, Lawrence (1994): Mathematics for economist. New York: W.W. Norton.