

CX1104 Part 2 for 2025/2026 (S1)

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Content

- 1) How will we conduct the course
- 2) Suggested study schedule for online video
- 3) Quiz 2 announcement

1) How will we conduct the course?

- 1) Watch the videos (youTube) according to the schedule (pg 4) for lectures/tutorials
 - a) Recommend you to download videos (slide 8)
 - b) or use AdBlockers to remove adverts

- 2) During the online lecture
 - a) we will summarize the lectures,
 - b) Q&A.

- 3) You can use Matlab to check your answers:
Installation Instruction: <https://libfaq.ntu.edu.sg/faq/267969>
(you must be in NTU network)
 - How to use Matlab(Brunton): <https://www.youtube.com/watch?v=U9EL8-9MuYA>
 - Matlab is not tested in the exam.

Teams link for online lecture (2025/26 S2) week 8~13

Monday: Week 8~13:
4.30~5.30pm

Microsoft Teams [Need help?](#)

[Join the meeting now](#)

Meeting ID: 478 915 592 265 2

Passcode: s8a2MY6A

<https://teams.microsoft.com/meet/4789155922652?p=yHP7G76UM4KB3U9v8X>

- Friday: Week 8~13:
8.30~10.30am

Microsoft Teams [Need help?](#)

- [Join the meeting now](#)

- Meeting ID: 483 945 605 189 0

- Passcode: J5Y3Z2CV

<https://teams.microsoft.com/meet/4839456051890?p=LM3BRPDAU3f9gyq4ZI>

2) Online Video learning Schedule for Part 2

NTU Week	Part 2 Chapter ID	Topics	Duration of recorded Videos (appr)	Tutorial Schedule
8	6	Orthogonality, Orthogonal Projection, Basis.	4hr 20min	None
9	7	Least Squares and Normal Eqn, Projection Matrix, Applications	2 hours	T6 (Orthogonality)
10	8A.1, 8A.2	Complex Numbers: Intro+ DeMoivre Theorem	2 hours	T7 (Least Squares)
11	8A.3	Complex Number: DFT,	2 hours	T8A (Complex Numbers)
12	8	Eigenvectors, Eigen-values, Diagonalisation, Power of A, Change of basis	3 hours	T8A and T8 (EigenVectors)
13	9.1.1-9.1.4	SVD Introduction – Ch 9 not in this exam (2025/26 S1) Quiz		T8 (EigenVectors)

Link: <https://www.youtube.com/@linearalgebra1884>

YouTube Recordings: 4 chapters

Ch 6,7,8A, 8

Part 2 Lecture recordings

Figure 3.1.17 The ordered pair (v_1, v_2) can represent a point or a vector.

If a vector v in 2-space or 3-space is represented in a rectangular coordinate system, the coordinates of its terminal point (Figure 3.1.17) are the components of v relative to the coordinate system. We will write $v = (v_1, v_2)$ to denote a vector in 2-space with components (v_1, v_2) , and $v = (v_1, v_2, v_3)$ to denote a vector v in 3-space.

36 videos

P2, Linear Algebra Ch 6

Linear Algebra · Playlist

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Either be $M > N$ or $M < N$.
More equations, less unknowns. Hence, over-determined!
Less equations, more unknowns. Hence, under-determined!

15 videos

P2, Linear Algebra Ch 7

Linear Algebra · Playlist

[View full playlist](#)

8A.1.0: Overview
8A.1.1: Introduction to complex numbers: Arithmetic Operations + Euler's formula (1.5 hour)
8A.2.1: Complex exponential form (1.5 hour)
8A.2.2: DFT transformation matrix W and $W^{1/N}$ (5 hours)

35 videos

P2, Linear Algebra Ch8A (Complex Numbers)

Linear Algebra · Playlist

[View full playlist](#)

Chapter 5: Eigenvalues and Eigenvectors 265
INTRODUCTORY EXAMPLE: Dynamical Systems and Spotted Owls 265
5.1: Eigenvectors and Eigenvalues 266
5.2: The Characteristic Equation 273
5.3: Diagonalization 281
5.4: Eigenvectors and Linear Transformations 288
5.5: Complex Eigenvalues 295
5.6: Discrete Dynamical Systems 301

34 videos

P2, Linear Algebra Ch 8 (updated Jan2021)

Linear Algebra · Playlist

[View full playlist](#)

Link: <https://www.youtube.com/@linearalgebra1884>

3) Quiz 2 and Exam announcement

Quiz 2: proposed date: week 13 - TBD

Quiz 2's Absentee: No ReQuiz. See Prof Deepu's email regarding absentees.

Instructions to Install MATLAB for NTU

<https://www.mathworks.com/academia/tah-portal/nanyang-technological-university-31272985.html>

<https://libfaq.ntu.edu.sg/faq/267969>



[NTU Library](#) / [NTU Ask A Librarian](#)

Where can I download Matlab software from?

Browse: [All](#) [Topics](#) ▼

Matlab licenses are available for NTU Staff & Students and managed by NTU Centre for IT Services (CITS). The information can be found [here](#).

Contact CITS for support: <https://entuedu.sharepoint.com/sites/Intranet/dept/cits/SitePages/Contact-CITS.aspx>.

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Instructions to use yt-dlp to download from youTube the recordings

Instructions to download the videos from YouTube for Linear Algebra Channel:

Date: Sep 2025

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- 1) Required Tools: download and install
 - a. yt-dlp:
<https://github.com/yt-dlp/yt-dlp?tab=readme-ov-file#installation>
 - b. ffmpeg: <https://www.ffmpeg.org/download.html>
 - c. Ensure paths to yt-dlp and ffmpeg are setup, then you can begin downloading using cmd below.

- 2) Use Windows Powershell:
Begin downloading the channel:

A) Example: download Ch6 (Orthogonality)

Note: Change the & to “&” -> as shell does NOT like & in command

yt-dlp [https://youtube.com/playlist?list=PLki3aFwg-9eyu9UH2MRavfzTLoZsQ7p"&'s=i=nTW5ilbiUyEgdjDM](https://youtube.com/playlist?list=PLki3aFwg-9eyu9UH2MRavfzTLoZsQ7p)

B) Example: download Ch7 (Least Squares)

yt-dlp [https://youtube.com/playlist?list=PLki3aFwg-9eyiQKiprGQHssrSWl8--WG1"&'s=i=7BXnr2admDON-FNU](https://youtube.com/playlist?list=PLki3aFwg-9eyiQKiprGQHssrSWl8--WG1)

C) Example: download 8A – complex numbers

yt-dlp [https://youtube.com/playlist?list=PLki3aFwg-9ewQzf2DWbK481bbI6Ndg5Os"&'s=i=PajxzuEvmHDQuCU_](https://youtube.com/playlist?list=PLki3aFwg-9ewQzf2DWbK481bbI6Ndg5Os)

D) Example: download 8: Eigen Values

yt-dlp [https://youtube.com/playlist?list=PLki3aFwg-9ewQzMhMCz3hQIv1l03ZAHyu"&'s=i=MDl3auLWo-yhUVpE](https://youtube.com/playlist?list=PLki3aFwg-9ewQzMhMCz3hQIv1l03ZAHyu)

Contact

If you need to contact me, pls send me email (using NTU email) clearly stating

- a) Who are you, which class/which subject (as I teach multiple courses), whats the issues, and what do you need.
- b) For tutorial matters, pls approach your tutor first.

Thank you.
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