

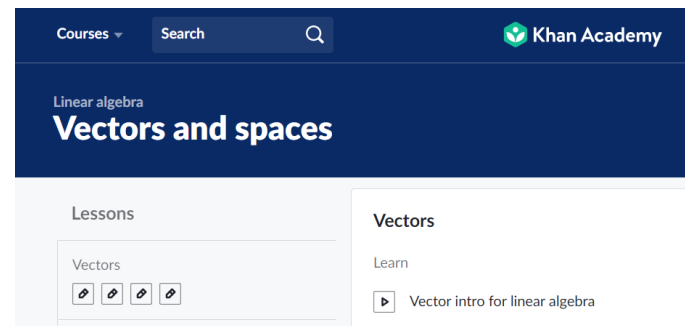
References for Linear Algebra

Chng Eng Siong

10 Aug 2020

Full Courses: Video Playlist

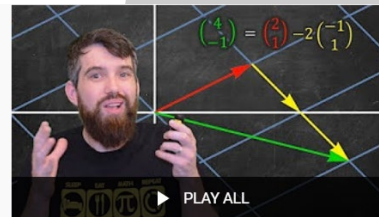
- 1) Khan Academy: <https://www.khanacademy.org/math/linear-algebra/>
- 2) MIT Strang 18.06: <https://ocw.mit.edu/courses/mathematics/18-06-linear-algebra-spring-2010/video-lectures/>
- 3) 3Blue1Brown: https://www.youtube.com/playlist?list=PLZHQObOWTQDPD3MizzM2xVFitgF8hE_ab
- 4) Trevor Bazett: <https://www.youtube.com/playlist?list=PLHXZ9OQGMqxfUI0tcqPNTJsb7R6BqSL06>
- 5) MathsTheBeautiful: <https://www.youtube.com/watch?v=Fmfh8jNqBlg&vl=en>
<https://www.lem.ma/books/AIapowDnjlDDQrp-uOZVow/landing>
- 6) Prof Dave Explains: https://www.youtube.com/playlist?list=PLybg94GvOJ9En46TNCXL2n6SiqRc_iMB8
- 7) Patrick JMT: <https://cosmolearning.org/courses/complete-quick-lessons-linear-algebra/>



Series

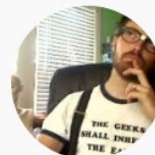


Essence of linear algebra
3Blue1Brown

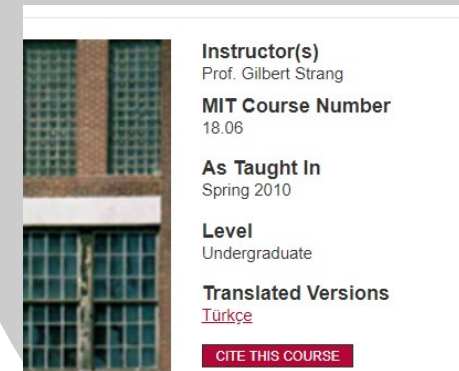


Linear Algebra (Full Course)

81 videos • 223,159 views • Last updated on Apr 4, 2020



patrickJMT
1.15M subscribers

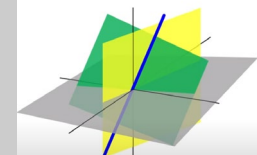


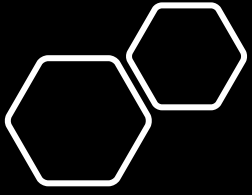
MathTheBeautiful
51.8K subscribers



Professor Dave Explains

Linear Algebra





Free Linear Algebra Books

- [https://math.libretexts.org/Bookshelves/Linear Algebra](https://math.libretexts.org/Bookshelves/Linear_Algebra)
- <https://www.math.ucdavis.edu/~linear/linear-guest.pdf>
- <http://linear.ups.edu/>

Linear Algebra

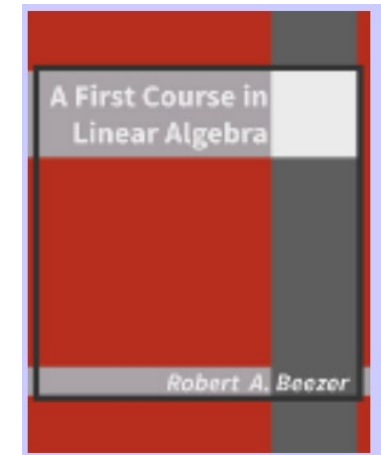
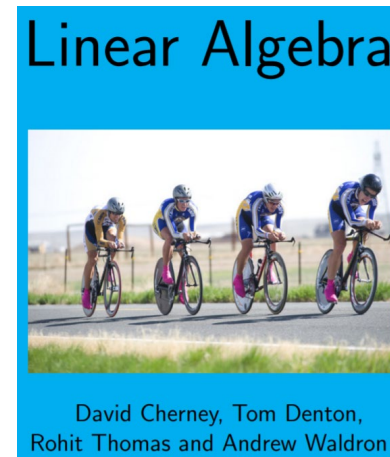
Last updated: Jun 24, 2019

Linear algebra is the study of vectors and linear transformations.

Book: Linear Algebra (Waldron, Cherney, and Denton)

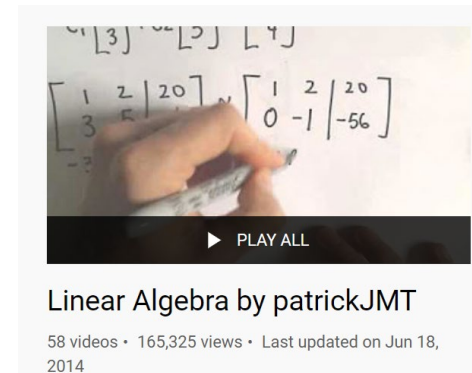
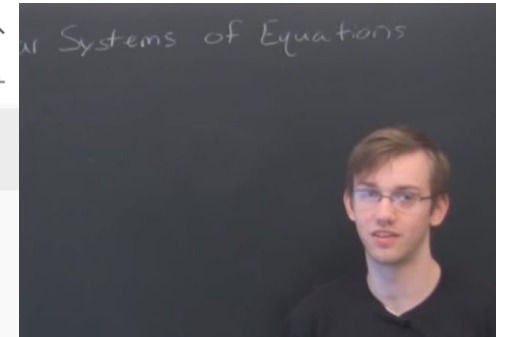
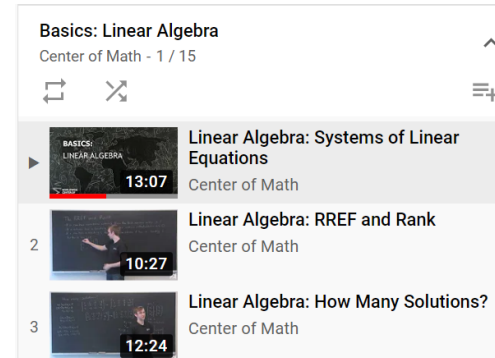
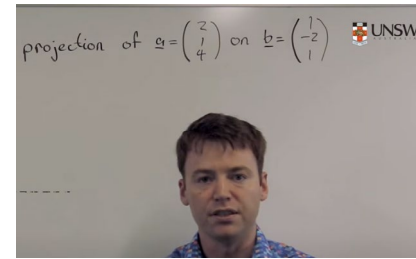
Book: Linear Algebra (Schilling, Nachtergaele and Lankham)

Book: A First Course in Linear Algebra (Kuttler)



Worked examples

- UNSW – Maths: <https://www.youtube.com/watch?v=usCWwRj2hO4>
- Center of Maths:
<https://www.youtube.com/watch?v=TIC0i14fa6I&list=PLgKTLIHQn950Xm27KxcsX7Dr9Fxm-gEi>



MIT worked examples:

MIT – tutorial (worked examples)

<https://ocw.mit.edu/courses/mathematics/18-06sc-linear-algebra-fall-2011/>

18.06SC, Fall 2011
Linear Algebra
Martina Balagovic, Teaching Assistant

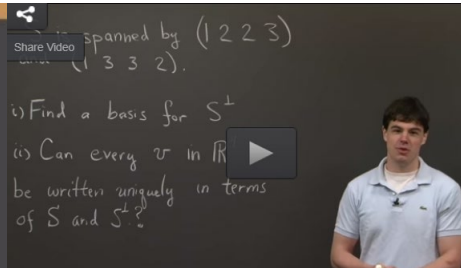
An Overview of Key Ideas

18.06SC, Fall 2011
Linear Algebra
David Shirokoff, Teaching Assistant

Orthogonal Vectors and Subspaces

spanned by $\begin{pmatrix} 1 & 2 & 3 \\ 1 & 3 & 2 \end{pmatrix}$.

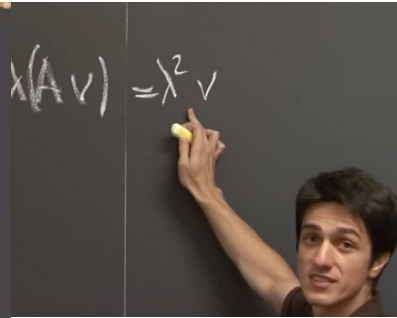
i) Find a basis for S^\perp
ii) Can every v in \mathbb{R}^3 be written uniquely in terms of S and S^\perp ?



18.06SC, Fall 2011
Linear Algebra
Nikola Kamburov, Teaching Assistant

Projection into Subspaces

$\lambda(Av) = \lambda^2 v$



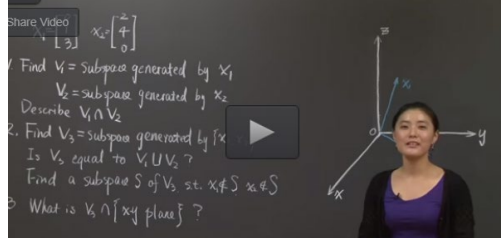
18.06SC, Fall 2011
Linear Algebra
Ben Harris, Teaching Assistant

18.06SC, Fall 2011
Linear Algebra
Ben Harris, Teaching Assistant

$x_2 = \begin{bmatrix} 2 \\ 1 \\ 0 \end{bmatrix}$

Find V_1 = subspace generated by x_1
 V_2 = subspace generated by x_2
Describe $V_1 \cap V_2$

Find V_3 = subspace generated by $\{x_1, x_2\}$
Is V_3 equal to $V_1 \cup V_2$?
Find a subspace S of V_3 st. $x_1 \notin S, x_2 \notin S$
What is $V_3 \cap \{xy \text{ plane}\}$?



Recent resources

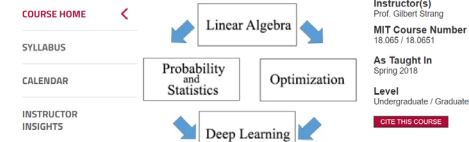
- Medium: <https://medium.com/sho-jp/tagged/linear-algebra>
- Computational Linear Algebra (Masters) – U of San Francisco (Masters)
 - <https://github.com/fastai/numerical-linear-algebra/blob/master/README.md>
 - <https://www.youtube.com/playlist?list=PLtmWHNX-guklc92m1K0P6bIOnZb-mg0hY>
- MIT Strang new course (Masters):
 - MIT 18.065 Matrix Methods in Data Analysis, Signal Processing, and Machine Learning, Spring 2018
 - <https://www.youtube.com/watch?v=Cx5Z-OsINWE>



Sho Nakagome in sho.jp

Feb 23, 2019 · 6 min read

Matrix Methods in Data Analysis, Signal Processing, and Machine Learning



Computational Linear Algebra for Coders

This course is focused on the question: How do we do matrix computations with acceptable speed and acceptable accuracy?

This course was taught in the [University of San Francisco's Masters of Science in Analytics](#) program, summer 2017 (for graduate students studying to become data scientists). The course is taught in Python with Jupyter Notebooks, using libraries such as Scikit-Learn and Numpy for most lessons, as well as Numba (a library that compiles Python to C for faster performance) and PyTorch (an alternative to Numpy for the GPU) in a few lessons.