

Introduction to Linear Algebra (ILA)

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What is “Linear algebra”?

Linear algebra is the study of the following related concepts:

- Vectors, vector spaces.
- Dependence/independence.
- Dimension, rank.
- Generating sets: basis.

Abstract concepts: logical arguments & proof.

Linear equations

(linear)

$$2 \times (u + v) = 2u + 2v$$

$$A(u + v) = Au + Av$$

$$(u + v)^2 \neq u^2 + v^2!$$

Solving linear equations

$$\begin{aligned}x + 6y + z &= 7 \\x - 2z &= 1 \\7x + 2y - z &= 0\end{aligned}$$

(Note: no x^2 terms....)

Eigenvector/eigenvalues

$$Ax = \lambda x$$

Google PageRank....

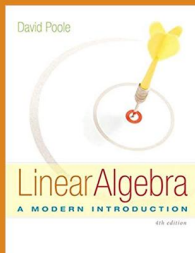
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(Monday, 17 September, 2018. <http://www.worldwidewebsize.com/>)

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Interactive engagement with TopHat

The lectures will involve interactive engagement with TopHat.

<https://app-ca.tophat.com/>

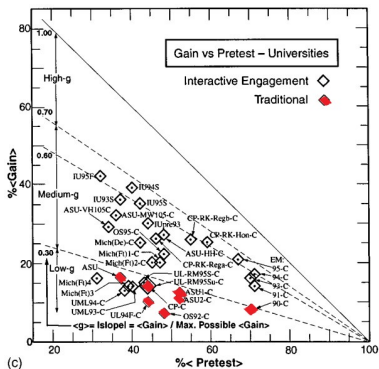
Join Code: 123733

We have moved on....



(William Hogarth, 1697–1764)

Research evidence



Hake, R. (1998) Interactive-Engagement vs. Traditional Methods: A Six-Thousand-Student Survey of Mechanics Test Data for Introductory Physics Courses.

But I have a timetable clash!

You MUST come to the assigned class.

<https://www.ed.ac.uk/timetabling-examinations/timetabling/personalised-timetable>

A week in the life of ILA week n : Wed \rightarrow Wed

Wed Reading guide

Th Reading quiz due RA_n .
Lecture L.n.1

Fri Lecture L.n.2
Reading guide

Mon Reading quiz RB_n .
Lecture L.n.3

Tu Workshop:

- ▶ **Workshop tasks on week n material.**
- ▶ Ask questions about H_n (you have one week to complete this).
- ▶ Hand-in (work from previous week) to your tutor H_{n-1} .
(*Late work will not be accepted...*)
- ▶ Work returned to you from tutor: H_{n-2} .

Th+1 Online quiz (work from previous week) Q_n .
Aim to have the hand-in done by now: H_n .

So, 8 hand-in assignments (H_n) and 10 online quizzes (Q_n).
First workshop tomorrow ...