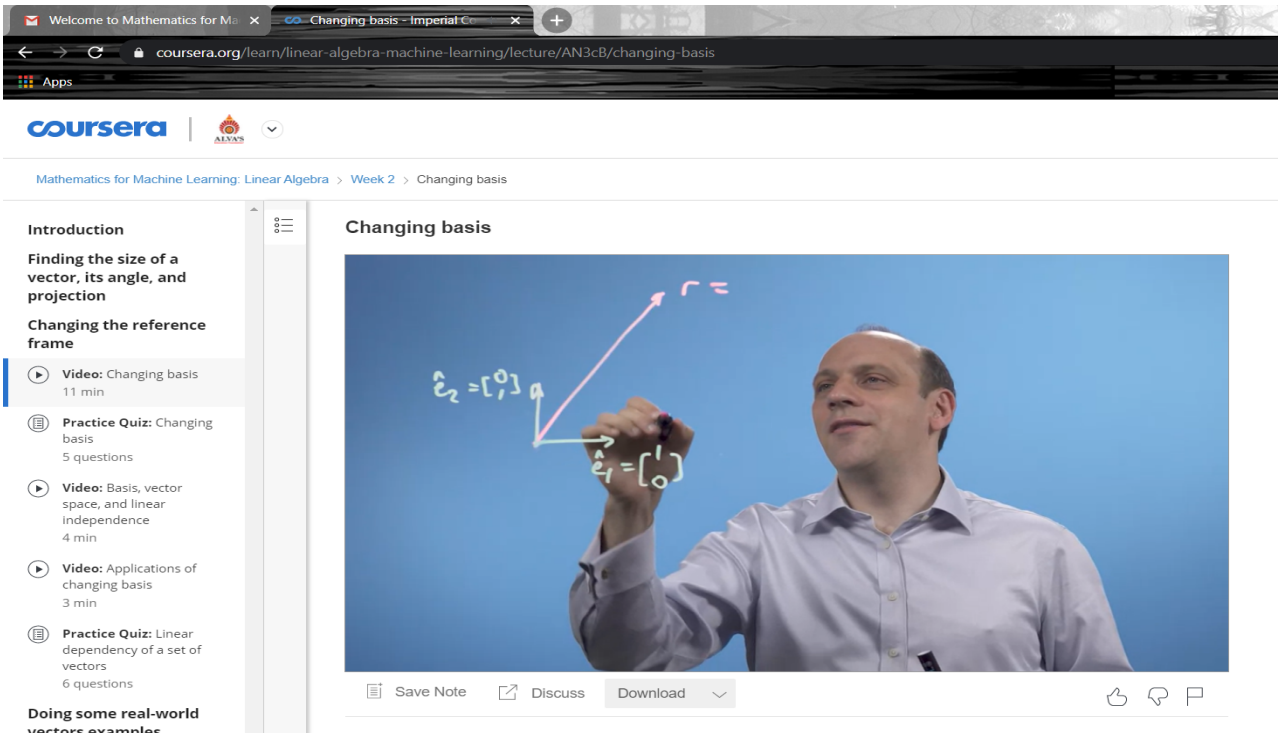
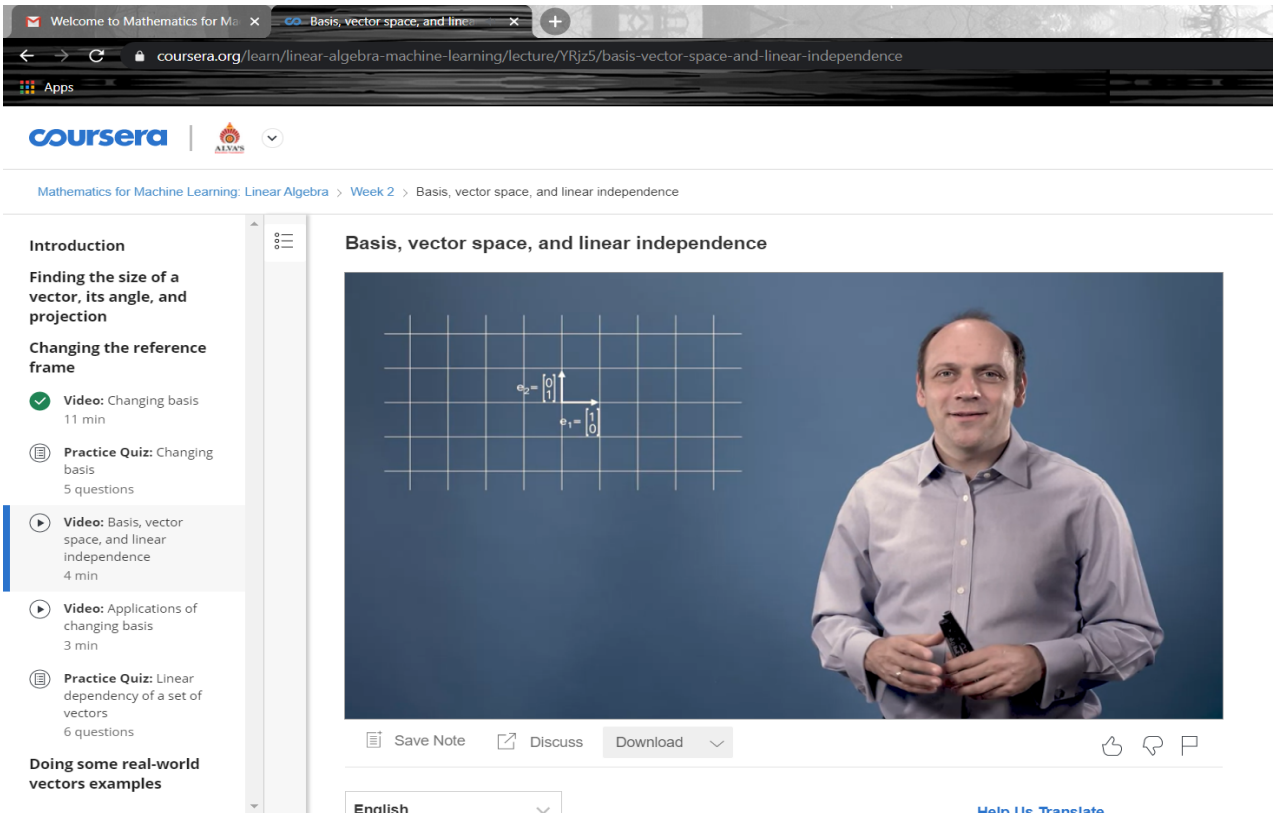
DAILY ASSESSMENT FORMAT

Date:	16-07-2020	Name:	YAMUNASHREE N
Course:	Coursera	USN:	4AL17EC097
Topic:	Mathematics for Machine Learning: Linear Algebra	Semester & Section:	6th SEM and 'B'section
Github Repository:	yamunashree-course		

FORENOON SESSION DETAILS(9.00am to 1.00pm)





Welcome to Mathematics for Ma | Changing basis - Imperial C

coursera.org/learn/linear-algebra-machine-learning/lecture/AN3cB/changing-basis

Apps

coursera

Mathematics for Machine Learning: Linear Algebra > Week 2 > Changing basis

Introduction

Finding the size of a vector, its angle, and projection

Changing the reference frame

Video: Changing basis
11 min

Practice Quiz: Changing basis
5 questions

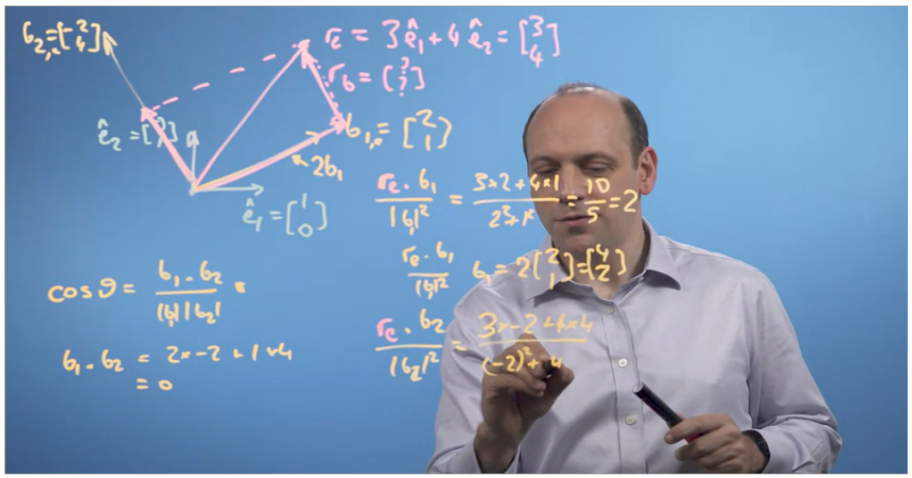
Video: Basis, vector space, and linear independence
4 min

Video: Applications of changing basis
3 min

Practice Quiz: Linear dependency of a set of vectors
6 questions

Doing some real-world vectors examples

Changing basis



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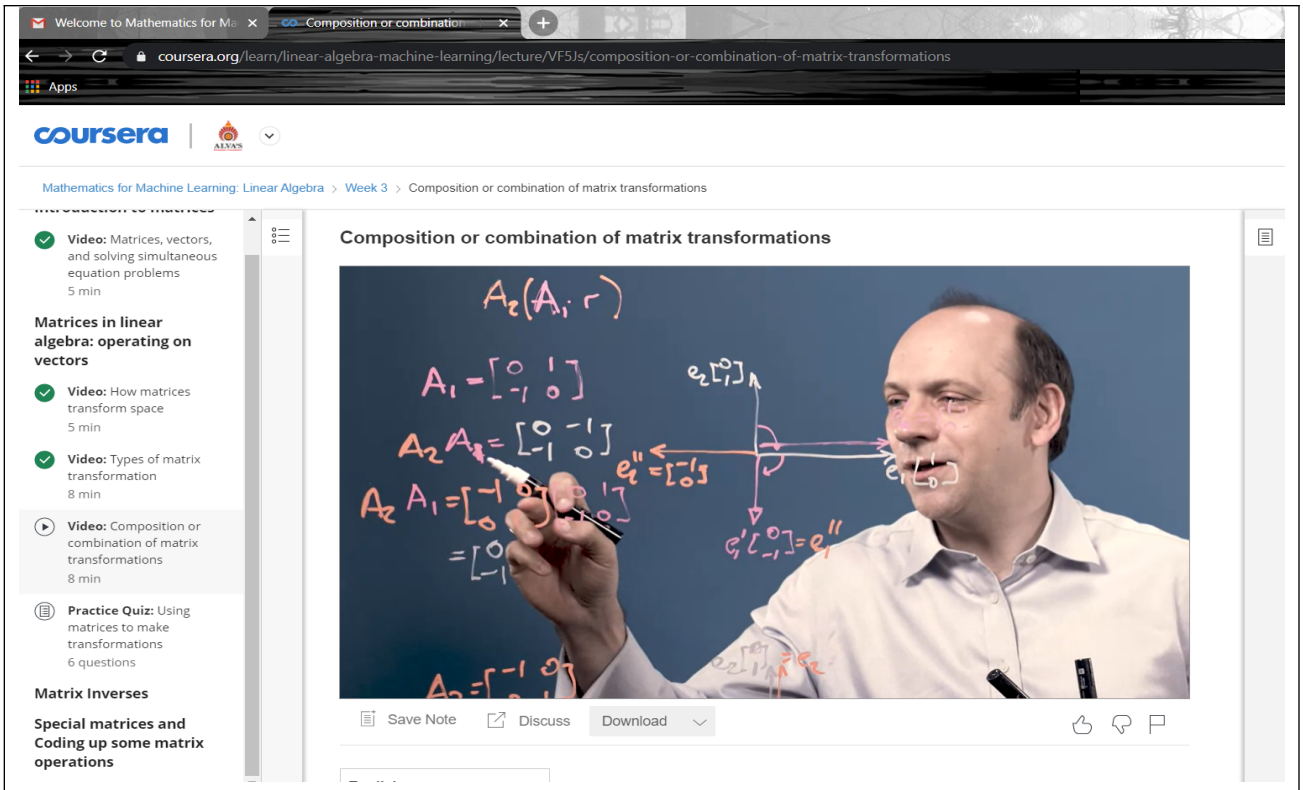
English

Help Us Translate



Vectors and matrices :

Scalars, **Vectors and Matrices**
A **vector** is a list of numbers (can be in a row or column), A **matrix** is an array of numbers (one or more rows, one or more columns).

vector in matrix algebra

It can be said that the **matrix algebra** notation is shorthand for the corresponding scalar longhand. **Vectors**. A **vector** is a column of numbers. {\bf a} = \left[\begin{array}{c} a_1 \\ a_2 \\ \vdots \\ a_p \end{array} \right] The scalars a_i are the elements of **vector** {\bf a}.

Row Matrix and example

In an m × n **matrix**, if m = 1, the **matrix** is said to be a **row matrix**. Definition of **Row Matrix**: If a **matrix** have only one **row** then it is called **row matrix**. **Examples** of **row matrix**: ... [13025] is a **row matrix**.

Elements of Matrix :

The numbers, symbols, or expressions in the **matrix** are called its entries or its **elements**. The horizontal and vertical lines of entries in a **matrix** are called rows and columns, respectively.

So as long as we stick to **matrices** of the same size, we do in fact have a **vector** space. So the long and short of it is that **vectors** can be **matrices** and **matrices** can be **vectors**. Now, **Matrices** are **vectors** - from the **vector** space of **matrices** - but not **all vectors** are **matrices**.

Scalars, **Vectors and Matrices**

A **vector** is a list of numbers (can be **in a** row or column), A **matrix** is an array of numbers (one or more rows, one or more columns).

The father of matrices :

Arthur Cayley (1821-1895), English mathematician and lawyer, who first published an abstract definition of a matrix in his Memoir on the Theory of Matrices in 1858, thus establishing it as a branch of mathematics. So this man was the father of matrix.

Vectors are a type of matrix having only one **column** or one **row**. A **vector** having only one **column** is called a **column vector**, and a **vector** having only one **row** is called a **row vector**. For example, matrix a is a **column vector**, and matrix a' is a **row vector**.

A **matrix** is a collection of numbers arranged into a fixed number of rows and columns. Usually the numbers are real numbers. In general, **matrices** can contain complex numbers but we won't see those here. Here is an **example** of a **matrix** with three rows and three columns: The top row is row 1.

The series primarily consists of a trilogy of science fiction action films beginning with The Matrix (1999) and continuing with two sequels, **The Matrix Reloaded** and **The Matrix Revolutions** (both in 2003), all written and directed by the Wachowskis and produced by Joel Silver.

Main point of the Matrix

The **Matrix** trilogy suggests that everyone has the individual responsibility to make the choice between the real world and an artificial world. Though Neo is the exemplar of free will, fate plays a large role in his adventure. Neo relies on the Oracle, and everything she says comes true in some way.

Application of Matrices

Almost every branch of physics, including classical mechanics, optics, electromagnetism, quantum mechanics, and quantum electrodynamics, **matrices** are used to study physical phenomena, such as the motion of rigid bodies.

Matrices have also come to have important applications in computer graphics, where they have been used to represent rotations and other transformations of images. is a 2 × 3 **matrix**. A **matrix** with n rows and n columns is called a square **matrix** of order n

Matrices are classified according to the number of rows and columns, and the specific elements therein. (i) Row **Matrix**: A **matrix** which has exactly one row is called a row **matrix**. The above two **matrices** are row **matrices** because each has only one row.

Matrices are a **useful** way to represent, manipulate and study linear maps between finite dimensional vector spaces (if you have chosen basis). **Matrices** can also represent quadratic forms (it's **useful**, for example, in analysis to study hessian **matrices**, which help us to study the behavior of critical points).

The numbers in a **matrix** can represent data, and they can also represent **mathematical** equations. Even more frequently, they're called upon to multiply **matrices**. **Matrix** multiplication can be thought of as solving linear equations for particular variables.

The term **matrix** was introduced by the 19th-century English mathematician James Sylvester, but it was his friend the mathematician Arthur Cayley who developed the algebraic aspect of **matrices** in two papers in the 1850s.

In biology, **matrix** is the material (or tissue) in animal or plant. Structure of connective tissues is an extracellular **matrix**. ... It is found in various connective tissue. It is generally used as a jelly like structure instead of cytoplasm in connective tissue.

In the **mitochondrion**, the **matrix** is the space within the inner membrane. The word "**matrix**" stems from the fact that this space is viscous, compared to the relatively aqueous cytoplasm.

The **extracellular matrix** (ECM) is the non-cellular component present within all tissues

and organs, and provides not only essential physical scaffolding for the cellular constituents but also initiates crucial biochemical and biomechanical cues that are required for tissue morphogenesis, differentiation and homeostasis.

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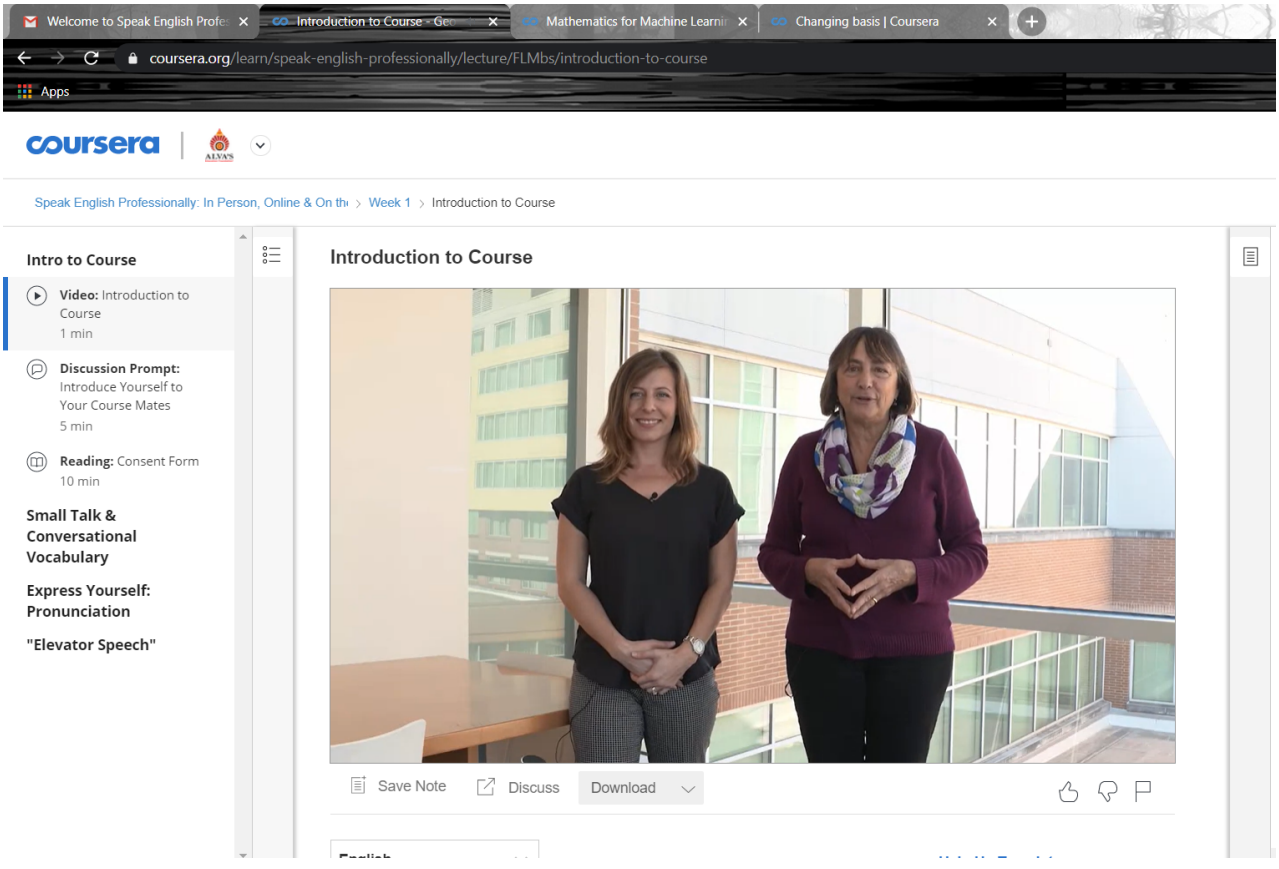

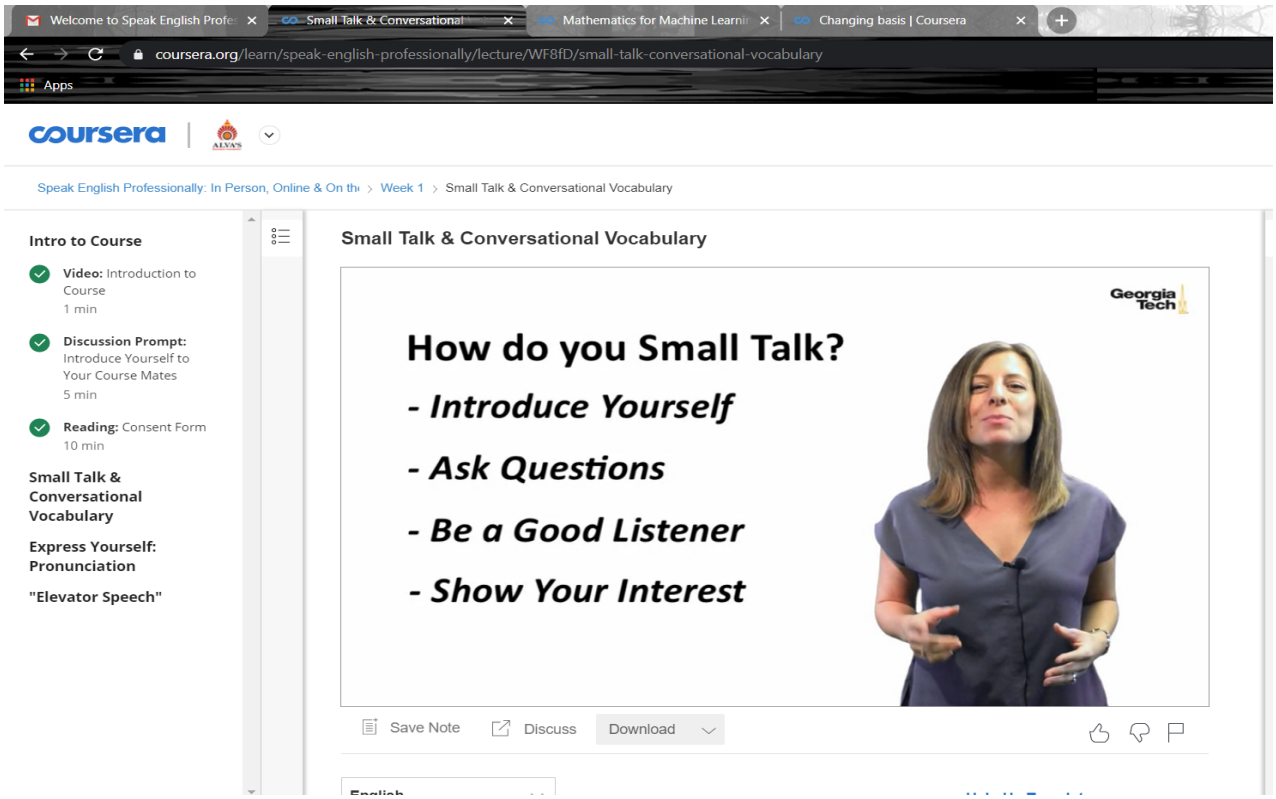

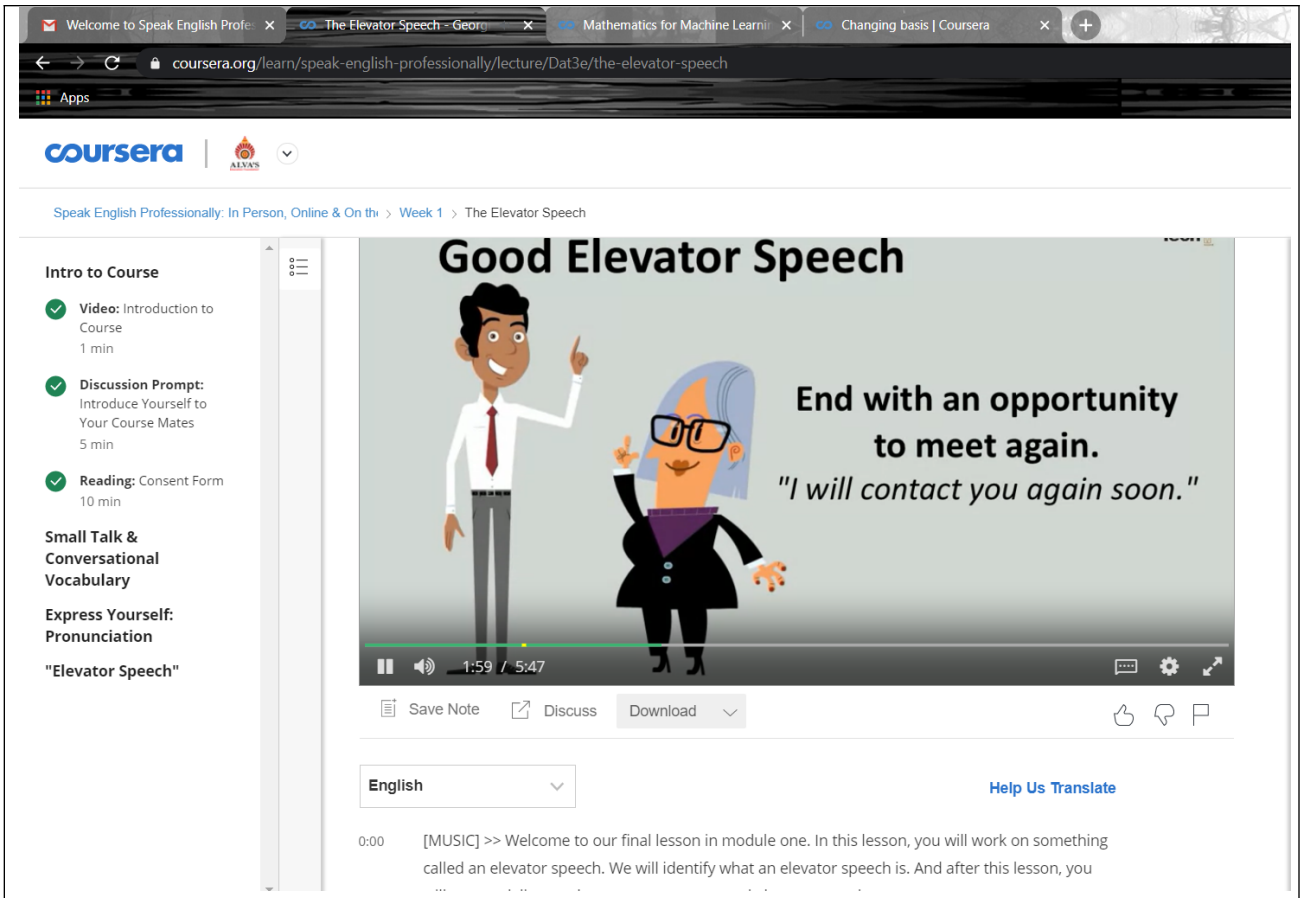

8 Tips to Make Professional English Part of Everyday Routine

- Focus on a profession. “Professional” is a catch-all category.
- Set up an RSS feed. RSS stands for “Rich Site Summary,” but it is often called “Really Simple” instead.
- Use Fluent videos.
- Listen to the radio.
- Always be listening.
- Mix business English with regular English.
- Use a social media aggregator.
- Go face to face.

Speak Like a Professional

- Use short, clear, declarative sentences. Short sentences focus your message and make it easier for your audience to follow.
- Speak in the active tense. Own your actions.
- Stay calm under pressure.
- Speak naturally.
- Say what you mean.
- Focus on what matters to your audience.
- Be specific.

Here are 8 steps to learn grammar easily on your own.

- Learn as many words as you can. To learn grammar easily, the basic element of any language is words.
- Talk to people.
- Watch and learn.
- Ask for corrections.
- Know the parts of speech.
- Look for patterns.
- Practice verb forms.
- Use an app.

The **five** main components of **language** are phonemes, morphemes, lexemes, syntax, and context. Along with grammar, semantics, and pragmatics, these components work together to create meaningful communication among individuals.

Grammar and punctuation **skills** are essential in your classroom writing program. Your students need to be using parts of speech correctly, developing figurative language, extending their use of sentence structure, using punctuation accurately, and further learning how words work.