Motivational Videos

Inspiring yet informal

CDC Steele
Department of Mathematics

Blended / Online Learning

- Resource include e.g. 5 videos each lasting 15 minutes per week
- Quizzes, examples sheets etc.

- Danger of videos becoming very intense and focused.
- Theory, examples etc.
- Detail and likely 'hard work'
- Students may want to watch several times

Need a contrast

- The motivational video
- Introduction to a week's work
- Some background, some quotes, demonstrations. Something topical. The need for this particular material.
- Should be relaxing for the students to watch – ONCE.

For 2020/21

- Courses MATH19801 (To Foundation) and MATH19662 (To MACE)
- Set of resources for each week
- Motivational Video followed by series of "Lessons"

Contents of Motivational Videos

- In-person introduction
- A quote
- Some explanation of the quote pointing towards …
- A demonstration, or some recent events linking to …
- The relevant mathematical topic
- In-person conclusion and pointer towards the lessons

Normally twice

Examples of content

.... you can open the well-stocked mathematical toolkit of continuous functions and differential equations, the saws and hammers of engineering and physics for the past two centuries (and the forseeable future).

Benoit Mandelbrot

Differential equations won't help you much in the design of aeroplanes –

So ....

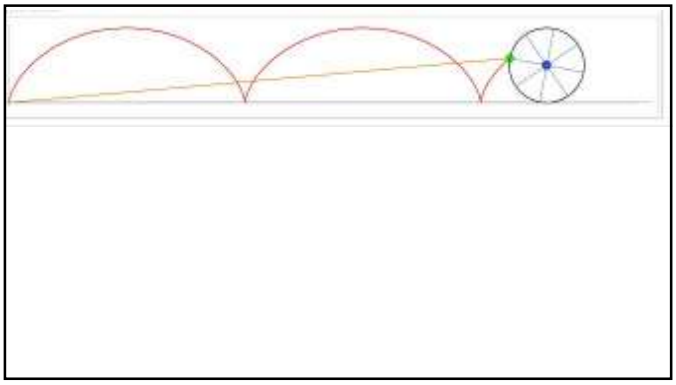
- Differential Equations ARE of crucial importance in aircraft design

What can we model ?

- Mass on a spring ?

What can we model ?

- Mass on a spring
- Why are there oscillations ?
- And why do these oscillations decay ?
- All about using Newton's Laws to set up a differential equation – and then solving it !



Time when the rate is DECREASING

Monday 12th April

	France	Germany	Italy	Spain	UK
Infections	130.54	137.19	161.96	159.21	38.08
Deaths	5.89	1.74	5.93	1.40	0.50

Or even

$$\begin{bmatrix} 130.54 & 137.19 & 161.96 & 159.21 & 38.08 \\ 5.89 & 1.74 & 5.93 & 1.40 & 0.50 \end{bmatrix}$$

Multiply Matrices

$$\begin{bmatrix} 2533.22 & 1278.75 & 1196.76 & 950.91 & 202.40 \\ 25.29 & 16.94 & 34.97 & 11.14 & 2.02 \end{bmatrix} \begin{bmatrix} 65.39 \\ 84.00 \\ 60.40 \\ 46.77 \\ 68.17 \end{bmatrix}$$

Populations of countries in millions

$$= \begin{bmatrix} 403606 \\ 5848 \end{bmatrix}$$

Total Infections

Total Deaths

Student Reactions

- Colin's motivational videos are awesome (0B1 student)
- I very much enjoyed the introductions to the week and the quotes (0B1 student)
- 'motivation' videos where he explains how the topic translates into the real world. (1M2 student)