Living Without Lectures

A Tale of Two Subjects

John Banks

La Trobe University → University of Melbourne
Two Blended Subjects

- **MAT1MAB** (Mathematical Applications in Biology):
  - Offered since 2009 replacing previous subject MAT1MCB (Maths & Comp for Biol).
  - No calculus assumed or taught, but...
  - Introduced under (now defunct) Flagship Online Units program.
  - Organised around application focussed themes (Learning Modules).
  - Use of spreadsheets to run simulations/models.
  - One 1 hour practice class per week (2009-2011)
  - Two 1 hour practice classes per week (2012-2014)
  - Short videos on specific topics (2014).

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Six two week Learning Modules:

1. Growth and Scaling:
   Size matters and matters of size.

2. Epidemics: Enough to make you sick!

3. Cellular Automata:
   What do epidemics and bushfires have in common?


5. Growth Creates Form: The shape of things organic.

Math. Apps. for Biol. Content

▶ Six two week Learning Modules:

1. **Growth and Scaling:**
   Size matters and matters of size.
   **Really:** Revision of basic functions

2. **Epidemics:** Enough to make you sick!

3. **Cellular Automata:**
   What do epidemics and bushfires have in common?

4. **Population Models:** When time runs smoothly.

5. **Growth Creates Form:** The shape of things organic.

6. **Climate Models:** Taking Earth’s temperature.
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  5. **Growth Creates Form:** The shape of things organic.
     **Really:** Trig functions (and really nice!)
  6. **Climate Models:** Taking Earth’s temperature.
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  3. Cellular Automata: What do epidemics and bushfires have in common?
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     Really: Stochastic processes
Introductory Calculus Content

- Arranged in the traditional way by mathematical dependence:
### Introductory Calculus Content

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<tr>
<th>W</th>
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Overview
Subject Contents
Technology
Issues
The Future . . .

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- Perhaps we should have “flipped dependencies” for subjects like this.
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- Online quizzes in LMS.
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Lectures Jim, but not as we know them

Lecture attendances ↓

Lecturing to empty theatres feels unproductive.

Students not viewing recorded lectures.

Why should this improve?

Might a short video approach offer redemption?

What might this mean for young academics?
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