

Living Without Lectures

A Tale of Two Subjects

John Banks

La Trobe University → University of
Melbourne



Two Blended Subjects

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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?

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

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

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Really: Revision of basic functions
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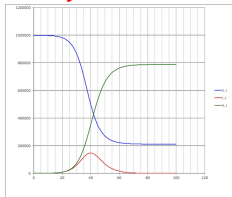
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Really: Intro to difference equations



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Really: Cellular automata



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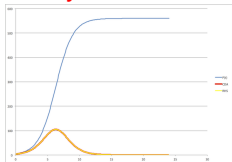
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4. **Population Models:** When time runs smoothly.

Really: Intro to differential equations (by stealth)



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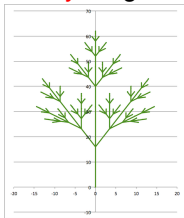
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Really: Trig functions (and really nice!)



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Really: Stochastic processes

Introductory Calculus Content

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3	Polynomials	Polynomials, graphs, inequalities
4	Functions and gradients	Test 1
5	Derivatives and graphs	Trigonometry
6	Rules of Differentiation	Sets and solution sets
7	More differentiation, Curve sketching	Test 2
8	Applications of differentiation	Trigonometric equations
9	Area	Relations and functions
10	Integration	Inverse functions
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- ▶ Perhaps we should have “flipped dependencies” for subjects like this.

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Issues

The Future ...

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Thanks! (Hope it was entertaining)

