

Chapter outline

Course structure

People

Course content

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Learning goals

Examples

Course overview

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Polling

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- ▶ **Poll: Why are you taking this class?**

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TAs

- ▶ Awesome

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Dushoff

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 - ▶ HIV, rabies, ebola, influenza, ...

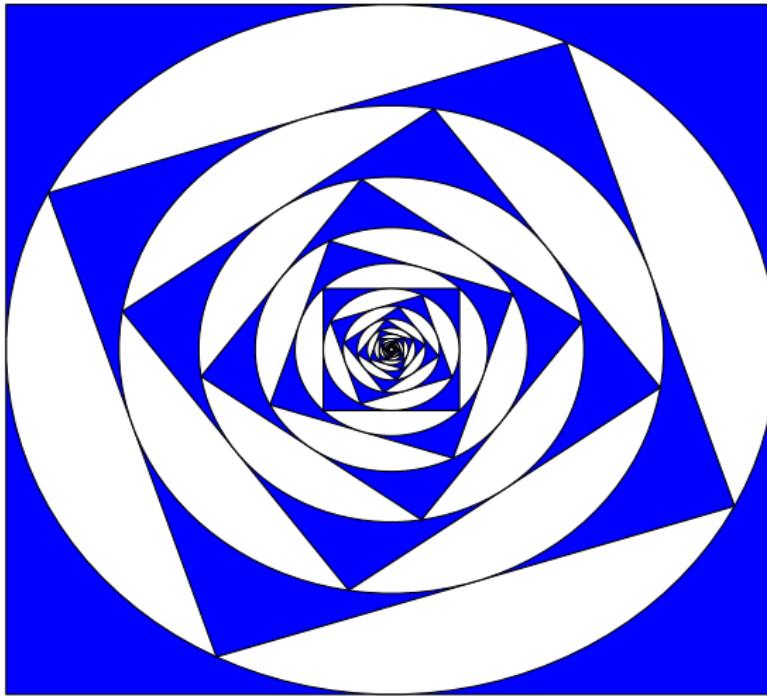
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Squaring the circle



Which country?



Which country?



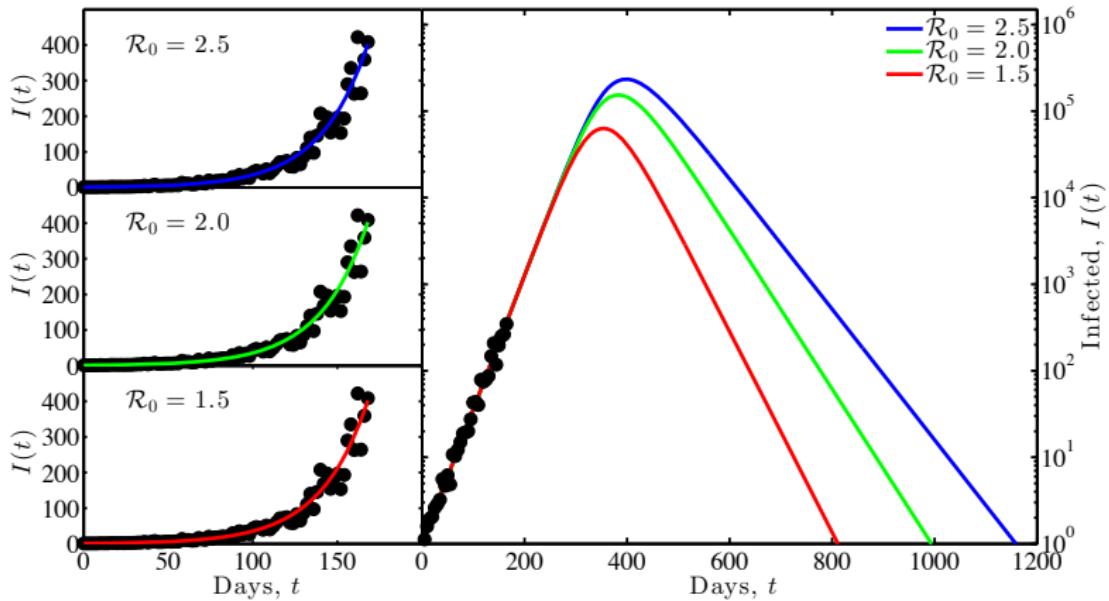
Which country?



Which country?



Ebola research



Students

- ▶ **Poll:** What year are you in?

Students

- ▶ Poll: What year are you in?
- ▶ Poll: What kind of career are you aiming for?

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Subsection 1

Learning goals

Learning goals

- ## ► Ecology and population ecology

Learning goals

- ▶ Ecology and population ecology
- ▶ Quantitative thinking

Learning goals

- ▶ Ecology and population ecology
- ▶ Quantitative thinking
- ▶ **Dynamical modeling**

Learning goals

- ▶ Ecology and population ecology
- ▶ Quantitative thinking
- ▶ Dynamical modeling

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- ▶ Poll: What is ecology?
- ▶ My answer

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- ▶ Poll: What is population ecology?
- ▶ My answer
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 - ▶ * We use *dynamical models* to link from the individual level to the population level

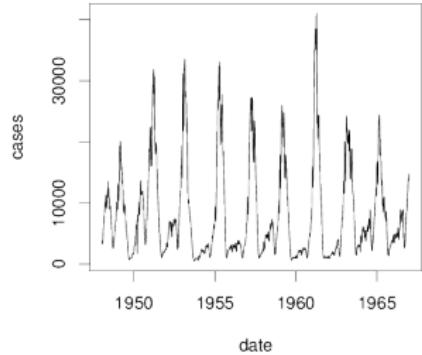
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Dynamical modeling

- ▶ Investigates the links between local, short-term processes, and large-scale, long-term outcomes



Measles reports from England and Wales

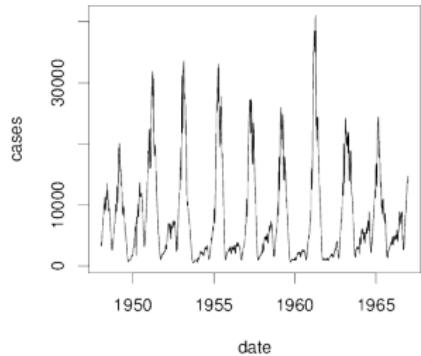


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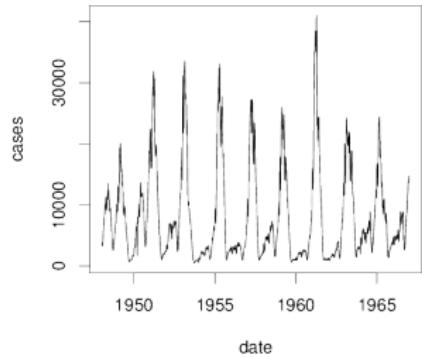


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Humans and abstract thought

- ▶ People are evolved to be concrete thinkers, not conceptual thinkers



value

energy | mass | speed of light

$$E = mc^2$$

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units

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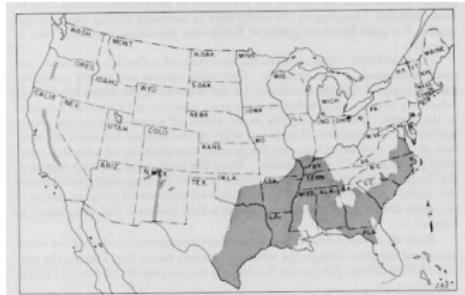
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Subsection 2

Examples

Malaria

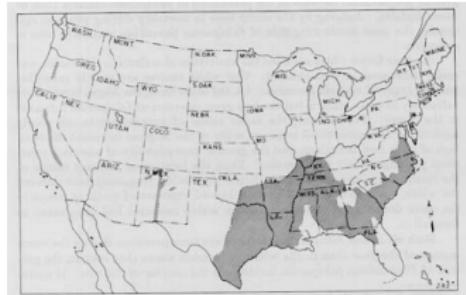
- A nasty, mosquito-borne disease



MAP 4.—Areas of the continental United States believed to be malarious in 1934-35.

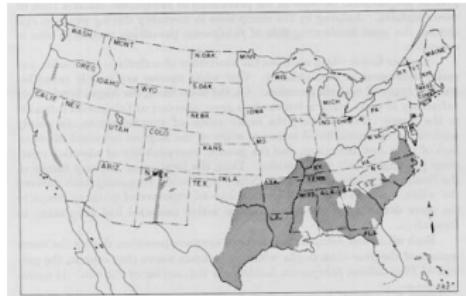
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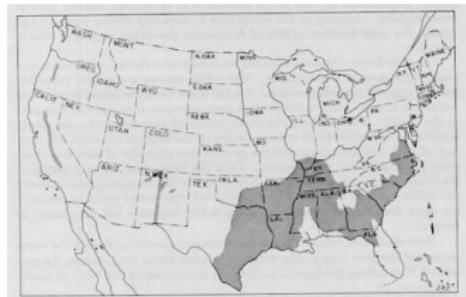
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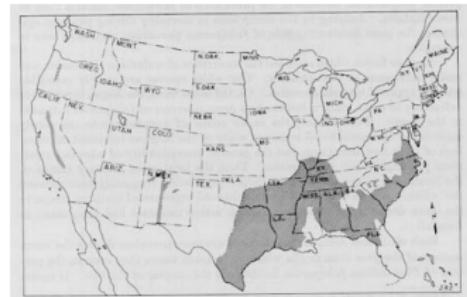
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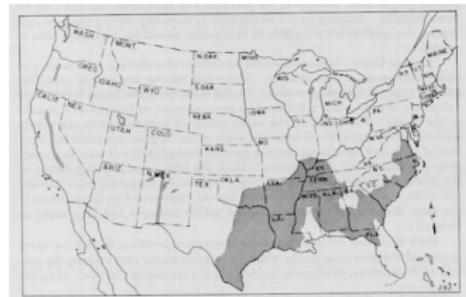
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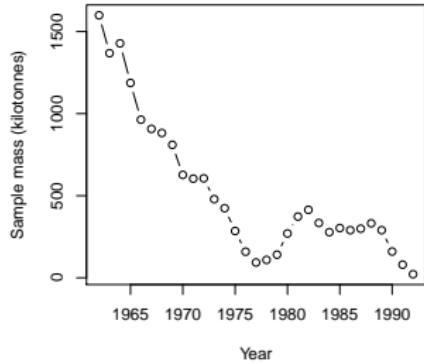
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Cod fisheries

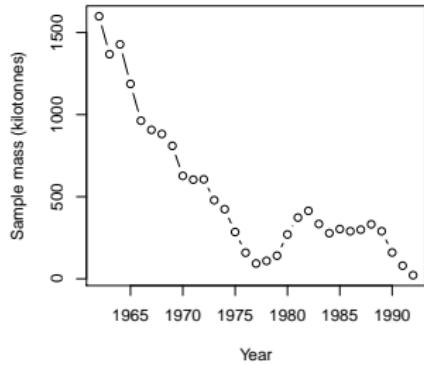


- ▶ Is the ocean too big for people to affect?



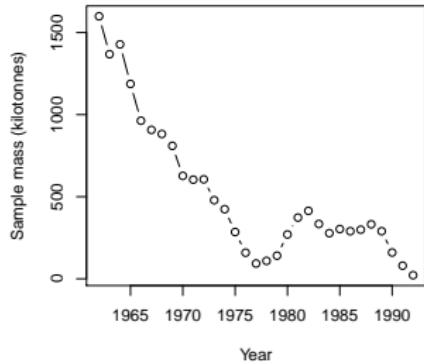
Cod fisheries

- ▶ Is the ocean too big for people to affect?
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Populations

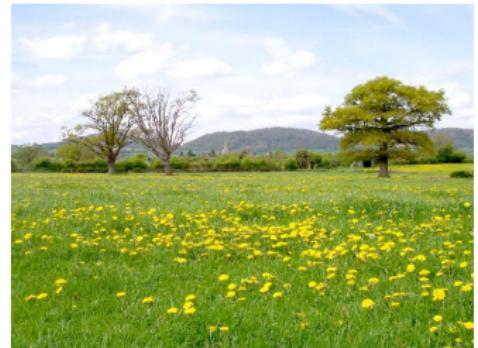
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