Introduction To Mathematical Models In Ecology And Evolution Time And Space Revised

#mathematical models #ecology evolution #ecological modeling #spatial temporal dynamics #quantitative biology

Explore the fundamental concepts of mathematical models applied to the intricate fields of ecology and evolution. This revised introduction delves into how temporal and spatial dynamics critically shape biological systems, offering essential insights for students and researchers alike.

Introduction To Mathematical Models In Ecology And Evolution Time And Space Revised

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Logistic Model
Carrying Capacity
Alley Effect
Component Alley Effect
Volterra Model
Assumptions
Leslie Power Model
Hauling Tanner Model
Generalized Preparatory Model
Function Response
What Is a Function Response
Types of Functional Responses
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Growth of the Prey Population
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Modelers Problem
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Earth's Evolution in 10 Minutes
4.5 BILLION YEARS AGO
3.8 BILLION YEARS AGO
3.3 BILLION YEARS AGO
2.4 BILLION YEARS AGO
1.1 BILLION YEARS AGO
250 MILLION YEARS AGO
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Introduction
Definition of Mathematical Modeling
Importance of Mathematical Modeling
Development of Mathematical Modeling
Parameters of Mathematical Modeling
Classification of Mathematical Models
=8 MMts$?=8 MMts$? by Jasmin Jaffar 1,855,647 views 1 year ago 40 seconds – play Short
Lecture 1: Basics of Mathematical Modeling - Lecture 1: Basics of Mathematical Modeling by Dr. Maths 202,342 views 3 years ago 25 minutes - In this video. let us understand the terminology and basic concepts of **Mathematical Modeling**,. Link for the complete playlist.

Intro
Outline
What is Modeling?
What is a Model?
Examples
What is a Mathematical model?
Why Mathematical Modeling?
Mathematics: Indispensable part of real world
Applications
Objectives of Mathematical Modeling
The Modeling cycle
Principles of Mathematical Modeling
Next Lecture
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Introduction
Transformers vs RNNs vs S4
What are state space models?
Selective State Space Models
The Mamba architecture
The SSM layer and forward propagation
Utilizing GPU memory hierarchy
Efficient computation via prefix sums / parallel scans
Experimental results and comments
Does Evolution Work? Mathematical Models Show Its Possibilities and Limitations - Peter Korevaar - Does Evolution Work? Mathematical Models Show Its Possibilities and Limitations - Peter Korevaar by FOCLOnline 1,569 views 5 years ago 1 hour, 1 minute - In this talk **mathematical evolutionary models**, that are used to solve complex real-life problems are **introduced**, and used to ...
Introduction
Mathematical Optimization
Evolutionary Algorithms
Threshold Accepting Algorithm
Traveling salesman problem
Flow shop
Color mixing
Warehouses
Cooling process
Conclusion
Mutations
Random mutations
Ecological Modeling – Maths Delivers - Ecological Modeling – Maths Delivers by Australian Mathematical Sciences Institute 10,432 views 6 years ago 8 minutes, 7 seconds - Animal population and **ecological modeling**,.
Ecological Modeling
Meta Population
Meta Population Model
Logistic Regression
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Types of Models
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Example 1
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Ecosystems
Food Chains
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Concentrations up Trophic Levels
Biomagnification: A Simple Model
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Intro
The (neutral) Wright-Fisher model
The simplest imaginable model of inheritance
Drift (large population limit)
Spatial structure
Evolution in a spatial continuum?
A model for a spatial continuum?
The pain in the torus
Mathematical problems
Malécot-Wright versus Kimura?
One more observation
An individual based model
limit (no space)
The A-Fleming-Viot process
The spatial A-Fleming-Viot process
Backwards in time
Adding selection

Introducing selection to the SLFV
(Spatial) Ancestral selection graph
When can we detect selection?
Scaling limits: Small 'neighbourhood size'
Spread of a favoured allele
Range expansion
Search filters
Keyboard shortcuts
Playback
General
Subtitles and closed captions
Spherical videos