

# NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Mathematics - NOC:Chaotic Dynamical Systems

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Co-ordinating Institute - IIT - Delhi

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

- Lecture 1 - The beginning
- Lecture 2 - Elementary Concepts
- Lecture 3 - Elementary Concepts (Continued...)
- Lecture 4 - More on orbits
- Lecture 5 - Periods of Periodic Points
- Lecture 6 - Scrambled Sets
- Lecture 7 - Sensitive Dependence on Initial Conditions
- Lecture 8 - A Population Dynamics Model
- Lecture 9 - Bifurcations
- Lecture 10 - Nonlinear Systems
- Lecture 11 - Horseshoe Attractor
- Lecture 12 - Dynamics of the Horseshoe Attractor
- Lecture 13 - Recurrence
- Lecture 14 - Recurrence (Continued...)
- Lecture 15 - Transitivity
- Lecture 16 - Devaney's Chaos
- Lecture 17 - Transitivity = Chaos on Intervals
- Lecture 18 - Stronger forms of Transitivity
- Lecture 19 - Chaotic Properties of Mixing Systems
- Lecture 20 - Weakly Mixing and Chaos
- Lecture 21 - Strongly Transitive Systems
- Lecture 22 - Strongly Transitive Systems (Continued...)
- Lecture 23 - Introduction to Symbolic Dynamics
- Lecture 24 - Shift Spaces
- Lecture 25 - Subshifts of Finite Type
- Lecture 26 - Subshifts of Finite Type (Continued...), Chaotic Dynamical Systems
- Lecture 27 - Measuring Chaos - Topological Entropy
- Lecture 28 - Topological Entropy - Adler's Version
- Lecture 29 - Bowen's Definition of Topological Entropy

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- Lecture 30 - Equivalence of the two definitions of Topological Entropy
- Lecture 31 - Linear Systems in Two Dimensions
- Lecture 32 - Asymptotic Properties of Orbits of Linear Transformation in  $\mathbb{R}^2$
- Lecture 33 - Hyperbolic Toral Automorphisms
- Lecture 34 - Chaos in Toral Automorphisms
- Lecture 35 - Chaotic Attractors of Henon Maps