SYLLABUS for course PHYD38, Title: Nonlinear Physics and Chaos,

Limit cycles [7]

Bifurcations again [8]

4. Chaos

Lorenz Equations [9]

1-d maps [10]

Fractals [11]

The exponential fractal

Strange attactors [12]

5. Nonlinear data analysis

Machine Learning, Machine Intelligence

Neural Networks

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Postscript:

NONLINEAR WORLD - possible advanced or applied topics for the time
after the Strogatz texbook can be chosed from this list:

Stability and bifurcations in Engineering

Euler beam buckling as bifurcation

Nonlinear behavior of materials

Nonlinearity, chaos and complexity in Physics and Astrophysics

The three body and N-body systems

Orbits, Lagrange points, Lyapunov timescales in

planetary and galactic systems

Nonlinear continuum mechanics

Dynamics of incompressible and compressible fluids

Vortices and turbulence in aerodynamics

Turbulent jets

Dynamics of galacic and protoplanetary disks

Linear and nonlinear stability and evolution

Nonlinear waves, Fluid resonances, Particle resonances

Nonlinear optics

Quantum chaos