Theory of CS?

Main focus of the course on Phase Transitions and Critical phenomena

Dynamical Systems and Chaos

Data driven methods

Information theory

Network Theory

Stochastic processes

Phase transitions

Scaling, fractal structures

Critical Phenomena

Evolutionary processes

Emergence

Self-Organised Criticality

Pattern formation

Game Theory

Interdisciplinary research

Simulation / computational model

What about the guest lectures?

The Euler Characteristic and Topological Phase Transitions in Complex Systems

Fernando N. Santos (DIEP)

Impact of Link Recommendation Algorithms in Opinion Polarization

Fernando P. Santos (IvI/SIAS)

A bottom-up approach to climate change agreements

Vítor V. Vasconcelos (IvI / CSL)

Dueling for dominance:
from tracking to maneuvers to strategies in 3D zebrafish fights

Greg Stephens (VU/Physics of Life)

Fernando P. Santos
Opinion dynamics on social networks

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Evolutionary processes

Critical Phenomena

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Simulation / computational model

Fernando P. Santos
Opinion dynamics on social networks

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Stochastic processes

Evolutionary processes

Critical Phenomena

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Simulation / computational model

Fernando N. Santos
Topological, high-order transition in the brain

Dynamical Systems and Chaos

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Evolutionary processes

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Simulation / computational model

Wout Merbis
Epidemic modeling in complex networks

Dynamical Systems and Chaos

Data driven methods

Information theory

Network Theory

Stochastic processes

Evolutionary processes

Critical Phenomena

Game Theory

Interdisciplinary research

Simulation / computational model

Wout Merbis
Epidemic modeling in complex networks

Data driven methods

Dynamical Systems and Chaos

Information theory

Network Theory

Stochastic / out-of-equilibrium processes

Evolutionary processes

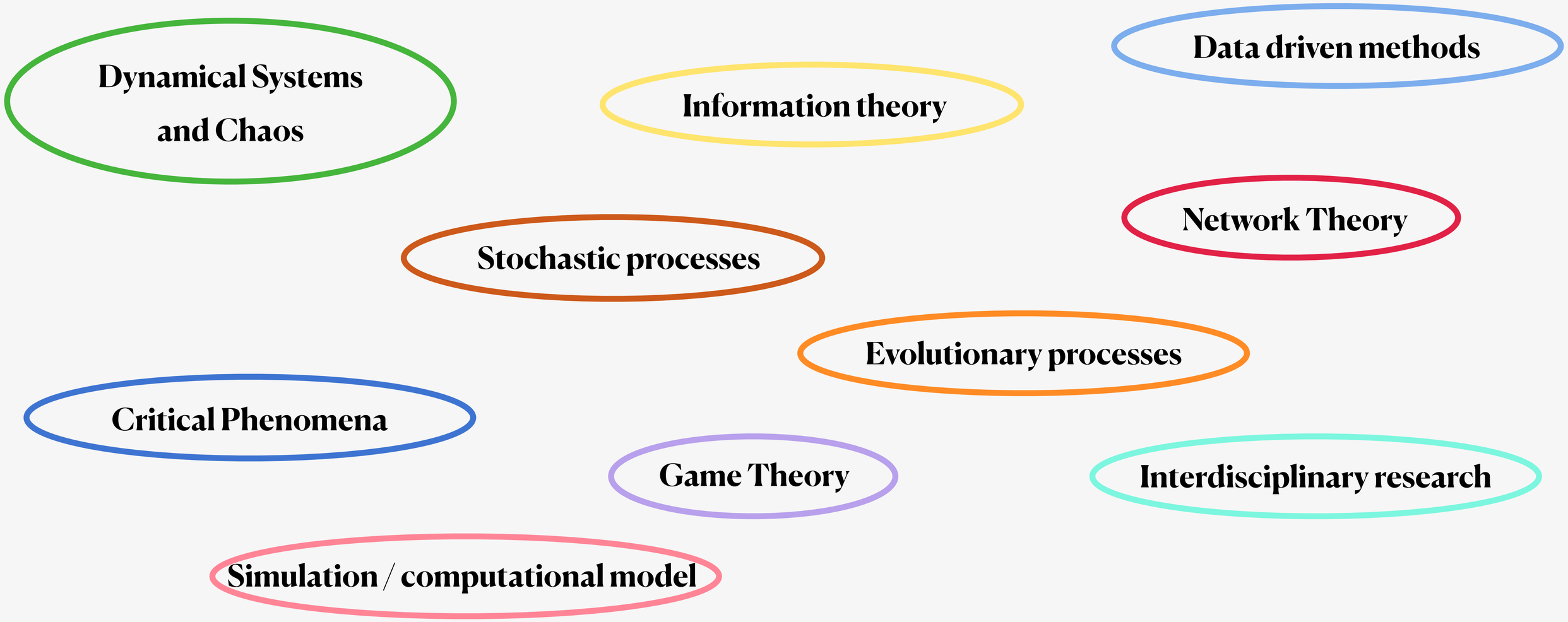
Critical Phenomena

Game Theory

Interdisciplinary research

Simulation / computational model

Vitor Vasconcelos
Reaching climate agreement



Vitor Vasconcelos
Reaching climate agreement

Dynamical Systems and Chaos

Data driven methods

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Evolutionary processes

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Greg Stephens
Theoretical biology

Dynamical Systems and Chaos

Data driven methods

Information theory

Network Theory

Stochastic processes

Evolutionary processes

Critical Phenomena

Game Theory

Interdisciplinary research

Simulation / computational model

Greg Stephens
Theoretical biology

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What can you study at UvA if you are interested in complex systems?

Out-of-equilibrium statistical physics

+ Good bases in probability theory and stochastic processes

Interdisciplinary research

Dynamical systems and Chaos

Information Theory

Critical phenomena

—>> **More information to be posted on Canvas towards the end of the course**

Data-driven approaches to complex systems