

## Suggested papers as basis for Assignment 2

Networks: [1, 2, 3, 4, 5, 6, 7, 8, 9]

Ecology: [10, 11, 12, 13, 14, 9]

Sociophysics: [15, 16, 17]

Neuroscience: [18, 19, 20, 21, 22]

Dynamical systems: [23, 24, 19, 8, 7]

Flocking: [25]

Self-organised criticality: [26, 11, 20]

Cancer: [27, 28]

Epidemics: [29, 30]

Games: [31, 32, 33]

## References

- [1] D. J. Watts and S. H. Strogatz, “Collective dynamics of ‘small-world’ networks,” *Nature*, vol. 393, pp. 440–442, 1998.
- [2] A. L. Barabási and R. Albert, “Emergence of scaling in random networks,” *Science*, vol. 286, pp. 509–512, 1999.
- [3] R. Milo, S. Itzkovitz, N. Kashtan, R. Levitt, S. Shen-Orr, I. Ayzenshtat, M. Sheffer, and U. Alon, “Superfamilies of evolved and designed networks,” *Science*, vol. 303, no. 5663, pp. 1538–1542, 2004.
- [4] M. E. J. Newman, “Modularity and community structure in networks,” *Proc. Natl. Acad. Sci. USA*, vol. 103, pp. 8577–8582, 2006.
- [5] H. Kim, C. I. Del Genio, K. E. Bassler, and Z. Toroczkai, “Constructing and sampling directed graphs with given degree sequences,” *New J. Phys.*, vol. 14, p. 023012, 2012.
- [6] G. Caldarelli, A. Capocci, P. De Los Rios, and M. A. Munoz, “Scale-free networks from varying vertex intrinsic fitness,” *Physical review letters*, vol. 89, no. 25, p. 258702, 2002.
- [7] A. Arenas, A. Díaz-Guilera, and C. J. Pérez-Vicente, “Synchronization reveals topological scales in complex networks,” *Physical review letters*, vol. 96, no. 11, p. 114102, 2006.
- [8] M. Barahona and L. M. Pecora, “Synchronization in small-world systems,” *Physical review letters*, vol. 89, no. 5, p. 054101, 2002.
- [9] S. Johnson, V. Domínguez-García, L. Donetti, and M. A. Muñoz, “Trophic coherence determines food-web stability,” *Proceedings of the National Academy of Sciences*, vol. 111, no. 50, pp. 17923–17928, 2014.
- [10] T. Gross, L. Rudolf, S. Levin, and U. Dieckmann, “Generalized models reveal stabilizing factors in food webs,” *Science*, vol. 325, pp. 747–50, 2009.
- [11] R. Solé, D. Alonso, and A. McKane, “Scaling in a network model of a multispecies ecosystem,” *Physica A*, vol. 286, pp. 337–44, 2000.

- [12] R. J. Williams and N. D. Martinez, “Success and its limits among structural models of complex food webs,” *Journal of Animal Ecology*, vol. 77, pp. 512–519, 2008.
- [13] U. Brose, R. J. Williams, and N. D. Martinez, “Allometric scaling enhances stability in complex food webs,” *Ecology Letters*, vol. 9, p. 1228–1236, 2006.
- [14] G. Caldarelli, P. G. Higgs, and A. J. McKane, “Modelling coevolution in multispecies communities,” *J. Theor. Biol.*, vol. 193, pp. 345–58, 1998.
- [15] R. Axelrod, “The dissemination of culture a model with local convergence and global polarization,” *Journal of conflict resolution*, vol. 41, no. 2, pp. 203–226, 1997.
- [16] J. Mira, L. F. Seoane, and J. J. Nieto, “The importance of interlinguistic similarity and stable bilingualism when two languages compete,” *New Journal of Physics*, vol. 13, no. 3, p. 033007, 2011.
- [17] V. M. Eguiluz and M. G. Zimmermann, “Transmission of information and herd behavior: an application to financial markets,” *Physical review letters*, vol. 85, no. 26, p. 5659, 2000.
- [18] J. J. Torres, M. A. Muñoz, J. Marro, and P. Garrido, “Influence of topology on the performance of a neural network,” *Neurocomputing*, vol. 58, pp. 229–234, 2004.
- [19] J. Hidalgo, L. F. Seoane, J. M. Cortés, and M. A. Muñoz, “Stochastic amplification of fluctuations in cortical up-states,” *PloS one*, vol. 7, no. 8, p. e40710, 2012.
- [20] J. A. Bonachela, S. De Franciscis, J. J. Torres, and M. A. Muñoz, “Self-organization without conservation: are neuronal avalanches generically critical?,” *Journal of Statistical Mechanics: Theory and Experiment*, vol. 2010, no. 02, p. P02015, 2010.
- [21] J. F. Mejías and J. J. Torres, “The role of synaptic facilitation in spike co-incidence detection,” *Journal of computational neuroscience*, vol. 24, no. 2, pp. 222–234, 2008.
- [22] S. Johnson, J. Marro, and J. J. Torres, “Robust short-term memory without synaptic learning,” *PLOS ONE*, vol. 8, no. 1, pp. 1–9, 2013.
- [23] S. H. Strogatz, “From kuramoto to crawford: exploring the onset of synchronization in populations of coupled oscillators,” *Physica D: Nonlinear Phenomena*, vol. 143, no. 1, pp. 1–20, 2000.
- [24] S. Sinha and S. Sinha, “Evidence of universality for the May-Wigner stability theorem for random networks with local dynamics,” *Phys. Rev. E*, vol. 71, p. 020902, 2005.
- [25] T. Vicsek, A. Czirók, E. Ben-Jacob, I. Cohen, and O. Shochet, “Novel type of phase transition in a system of self-driven particles,” *Physical review letters*, vol. 75, no. 6, p. 1226, 1995.

- [26] T. Per Bak and K. Wiesenfeld, “Self-organized criticality: and explanation of 1/f noise,” *Phys. Rev. Lett*, vol. 59, pp. 381–384, 1987.
- [27] A. Brú, D. Casero, S. De Franciscis, and M. A. Herrero, “Fractal analysis and tumour growth,” *Mathematical and Computer Modelling*, vol. 47, no. 5, pp. 546–559, 2008.
- [28] H. Inokawa, N. Katayama, and M. Nakao, “Evaluation of multidrug cancer chronotherapy based on cell cycle model under influences of circadian clock,” in *Engineering in Medicine and Biology Society (EMBC), 2016 IEEE 38th Annual International Conference of the*, pp. 1439–1442, IEEE, 2016.
- [29] T. House, “Epidemiological dynamics of ebola outbreaks,” *Elife*, vol. 3, p. e03908, 2014.
- [30] J. Klaise and S. Johnson, “From neurons to epidemics: How trophic coherence affects spreading processes,” *Chaos: An Interdisciplinary Journal of Nonlinear Science*, vol. 26, no. 6, p. 065310, 2016.
- [31] C. Gracia-Lazaro, J. Gomez-Gardenes, L. M. Floria, and Y. Moreno, “Inter-group information exchange drives cooperation in the public goods game,” *Physical Review E*, vol. 90, no. 4, p. 042808, 2014.
- [32] M. A. Nowak and K. Sigmund, “Tit for tat in heterogeneous populations,” *Nature*, vol. 355, no. 6357, pp. 250–253, 1992.
- [33] S. Johnson, “Escaping the tragedy of the commons through targeted punishment,” *Royal Society open science*, vol. 2, no. 8, p. 150223, 2015.