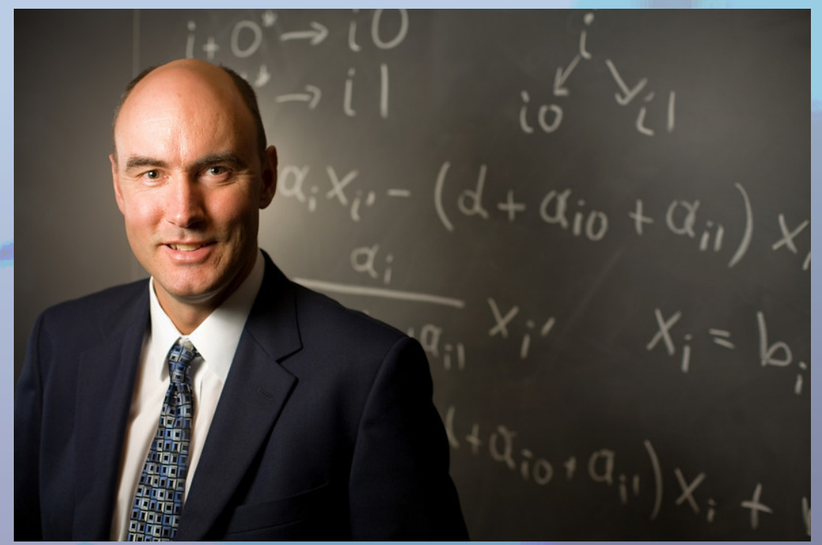
Natural Cooperation

Wednesday, April 18, 2018
7:00 – 8:00PM
Life Sciences Center 100
Arvo J. Oopik '78 Auditorium

Cooperation means that one individual pays a cost for another to receive a benefit. Cooperation can be at variance with natural selection. Why should you help competitors? Yet cooperation is abundant in nature and is important component of evolutionary innovation. Cooperation can be seen as the master architect of evolution, as the third fundamental principle of evolution beside mutation and selection. I will present five mechanisms for the evolution of cooperation: direct reciprocity, indirect reciprocity, spatial selection, group selection and kin selection. Direct reciprocity means there are repeated interactions between the same two individuals and my behavior towards you depends on what you have done to me. Indirect reciprocity means there are repeated interactions within a group and my behavior towards you also depends on what you have done to others. Indirect reciprocity is the key mechanism for pro-social behavior in humans and has selected for social intelligence and human language.



Martin Nowak is a professor of Mathematics and Biology and the Director of the Program for Evolutionary Dynamics at Harvard University. Evolutionary dynamics is the study of the fundamental principles that guide evolutionary change.

Further reading:
Nowak MA & Highfield R (2011) SuperCooperators. Simon & Schuster.
Nowak MA (2006). Five rules for the evolution of cooperation. Science 314: 1560-1563.
Hilbe C, Chatterjee K, Nowak MA (2018). Partners and rivals in direct reciprocity. Nature Human Behaviour.

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2018 Kemeny Public Lecture

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