Reading group on:

The Strategy of the Gene
C. H. Waddington, 1957

Session 1:
Chapter 1  Form, End and Time
Chapter 2  The Cybernetics of Development
key words: development, differentiation, buffering of dev. systems, canalisation, the epigenetic landscape, (landscape-)metaphors in biology

Suggested reading:
Jan Baedke, 2013, *Studies in History and Philosophy of Biological and Biomedical Sciences* 44:756-773;
“The epigenetic landscape in the course of time: Conrad Hal Waddington’s methodological impact on the life sciences”
“The evolutionary genetics of canalization.”
“Canalization in evolutionary genetics: a stabilizing theory?”
“Epigenetic Landscaping: Waddington’s Use of Cell Fate Bifurcation Diagrams”

Session 2:
Chapter 3  Selection Of, For and By
key words: the ‘active’ organism, environmental influence, behaviour, niche construction, reciprocal causation,

Suggested reading:
“Evolutionary Systems – Animal and Human”
“Niche construction, ecological inheritance, and cycles of contingency in evolution”
“Behavioral Drive versus Behavioral Inertia in Evolution: A Null Model Approach”

Session 3:
Chapter 4  The Organisation of the Gene Pool

For more information, please contact Nathalie.Feiner@biol.lu.se
key words: genotype-phenotype map, the interactive genome, origins of phenotypic variation, developmental bias, modularity

Accompanying literature:
“The role of genetic architecture constraints for the origin of variational modularity.”
“Chance favors the prepared genome.”

Session 4: Chapter 5 The Survival of the Adaptable
key words: phenotype first, genetic assimilation, Baldwin effect

Suggested reading:
“The Baldwin Effect and Genetic Assimilation: Revisiting Two Mechanisms of Evolutionary Change Mediated by Phenotypic Plasticity”
“Chapter 6: Adaptive Evolution”
“Phenotypic plasticity and evolution by genetic assimilation”
“The role of developmental plasticity in evolutionary innovation”
“Embryology and the evolutionary synthesis: Waddington, development and genetics.”

General background reading:
Brian K. Hall, 1992, American Zoologist 32:113-122
“Waddington’s Legacy in Development and Evolution”
“Form and Strategy in Biology: Reflections on the Career of C. H. Waddington”
“Conrad Hal Waddington: the last Renaissance biologist?”
“Diachronic Biology Meets Evo-Devo: C. H. Waddington’s Approach to Evolutionary Developmental Biology”

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