Lecture layout:

- Properties of the experimental network system
  Structural considerations
  Electrophysiological recordings
  Stimulation-induced activity
  The concept of association-strength between a pair of activities, and its relations to activation paths
  Interactions between activation paths
  Long-term effects of stimulation on association-strength

 - Selective adaptation
  Increased sensitivity to rare input on the background of frequent input
  Reversibility of the phenomenon
  Impacts of path inactivation
  Pharmacological effects
  Mechanism

- Learning
  Biological realization of learning using closed-loop designs
  The concept of reward
     >Rewarding entity (e.g. dopamine)
     >Drive reduction theory (Guthrie, Hull)
  The effect of dopamine on association strength
  Dopamine as a drive
  Experimental realization of learning by drive reduction

- The limits of the systems

- Envisioned technological and conceptual developments; their impacts on the ability to interface with real brains