Module 0: Introduction

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Aim:

- Define relation between experiment and theory, bottom-up versus top-down models
- See model as tool, get to know a success story

Description:

- Discuss previous experiences by students with models
- Ask expectations, explain schedule of week, day, when hands-on parts
- Present slides
- including

1. top-down success story [Herrgen et al. 2010]
2. Comparison of concepts
3. Model: model organism (model of human physiology) versus conceptual model (end of paper, static representation, flowchart) versus mathematical models (typically: dynamical system theory)
4. for mathematical models: analytical solution (extra insight) versus simulation, choose adequate model formalism, discrete versus continuous, deterministic versus stochastic, single-cell versus multicellular, bottom-up versus top-down
5. Historical overview of pattern formation

Paper:

- Herrgen, L., Ares, S., Morelli, L.G., Schröter, C., Jülicher, F., and Oates, A.C. (2010) Intercellular Coupling Regulates the Period of the Segmentation Clock. Curr. Biol. 20(14):1244-1253. PMID 20637620. link