



Mini-projects

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Mini-projects

- Evaluation based on **individual mini-projects**
- Mini-projects develop specific aspects of course
- Mini-projects to be selected from predetermined list or from student proposals
- Mini-projects may be literature study, implementation of algorithm, construction of model, ...
- Results of mini-projects described in report (~10 p)
 - Introduction (context, problem/question, approach)
 - Methods
 - Results
 - Discussion and conclusions
- Reports discussed with teacher (feedback)

Mini-projects

- Possible topics for **mini-projects**:
 - Whole-cell modeling
 - Biotechnological applications of flux balance analysis (FBA)
 - Coarse-grained resource allocation models
 - Resource balance analysis (RBA) and other resource allocation variants of FBA
 - Feedback control of synthetic networks
 - Model checking of biological networks
 - Evolution of regulatory networks
 - Machine learning approaches for the modeling and inference of biological networks
 - Acceleration of stochastic simulation using parallel computing
 - Scaling up the stochastic analysis of regulatory networks using Finite State Projection (FSP)

Mini-projects

- Possible topics for **mini-projects** (cont'd):
 - Automated design of synthetic networks
 - Simulation of cellular processes on the single-molecule level
 - Modelling communities of microorganisms
 - Large-scale modeling of signaling networks using Boolean logic
 - Experimental design for predicting the most informative experiments
 - Tracking individual cells using image analysis and machine learning
 - ...

Introduction section

- Context
 - State-of-the-art
 - Precise problem or specific question
 - Approach to address problem or answer question
 - **Preview of results**
 - **Statement of significance**
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- One or two-page report after fall holidays (Monday, Nov 1), on first four points of Introduction section

Merci !



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